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Q. Part

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DUBLIN JOURNAL
OF
MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*The Micro-Chemical Reaction of Cells in their relation to Immunity.** By J. ALFRED SCOTT, M.A., M.D. Univ. Dubl.; President of the Pathological Section of the Royal Academy of Medicine in Ireland; Professor of Physiology in the Royal College of Surgeons in Ireland.

THE study of pathological processes has always been of great interest to me, not only from their practical importance, but also from their intimate connection with normal physiological ones. Both are necessarily the same vital phenomena. In the one case we have the normal functions of the body, and in the other the same functions going a little too fast, or too slow, or irregularly through some outside agency.

One of the most helpful studies in connection with the understanding of some difficult phases which occur in health are explained by the changes which can occur if the healthy condition be upset; while conversely the study of pathology is difficult without a knowledge of the proper uses of the affected parts.

Very much more attention is now given to the behaviour of individual cells. Many functions which were supposed to belong to the body at large are now known to belong to particular cells, and probably, as our knowledge extends into the way in which proto-

* The Presidential Address to the Section of Pathology in the Royal Academy of Medicine in Ireland, Friday, November 8, 1893.

plasm can be differentiated, we shall be able to localise these functions still better, and then see how these parts are modified by disease.

It is now well known that protoplasm is not a simple substance, but that it consists of at least two parts—a fibrillar substance, and a more liquid substance between the fibrils—the spongioplasm and hyaloplasm. While in the cell nucleus we have at least three parts—coarse fibrils which stain easily, and hence termed, though unfortunately, chromatin; fine fibrils, which stain with difficulty, the achromatin; and a fluid between the fibrils probably similar to the fluid in the cell protoplasm.

In some cells we have another point of interest, to quote from Hertwig—"At the tips of the spindle" (which appears during the division of the cells) "there may be demonstrated two special and exceedingly minute bodies, one of which occupies the exact centre of each of the systems of rays. They are, in fact, to be regarded as the cause of the latter, and inasmuch as during the elongation of the nucleus they are to be found at each of its two poles, they may be especially designated as *polar corpuscles*, or *centrosomes*, or *attraction spheres*. During the whole process of division of the nucleus and cell-body it appears as a directing force belonging to the two polar corpuscles."

The functions of the chromatin filaments in the nucleus seem to be most intimately connected with the reproduction of the cell. If an amœba be divided both halves may grow to the full size, but only that which contains the nucleus can further divide itself. Again, in nearly all cells, animal and vegetable, where the process of division has been satisfactorily watched the division has been seen to commence in the chromatin fibres. And in the ovum of such animals as possess ova sufficiently transparent, portions of the chromatin of the nucleus are cast off, these being termed the *polar bodies*—these are quite different bodies from those just described as polar corpuscles or attraction spheres—the small portion of chromatin which remains is that alone which can be considered the nucleus of the female cell, or rather the female *pronucleus*. This small portion is reinforced by the *male pronucleus*, which, according to Van Beneden, has divided in a somewhat similar manner. The union of the selected portions of the chromatin of both pronuclei forms the true nucleus of the germinal cell, which is then constituted with powers of rapid reproduction not possessed by other cells normally existing in the body.

The addition of various chemical solutions to the cells under the microscope has long been recognised as a means of facilitating research. Formerly the addition of acetic acid was described as one of the methods of recognising pus cells, which it made more evident by clearing up the cell protoplasm, while the nucleus became more apparent. There is evidently something in the nucleus which is insoluble in dilute acids. Again, most of the microscopic sections we see now are stained in many cases simply to render the nuclei visible as a guide to the position of the cells. But these colours are really chemical re-agents, the full import of which I cannot now enter upon. A couple of examples will suffice.

The name chromatin has been given, as I have mentioned, to a part of the nucleus from its great affinity for dyes, but the protoplasm also takes up some. Indeed every tissue in the body can be coloured if we use an appropriate colouring material. The aniline dyes have given us most light on their action. It has been found that these dyes differ amongst themselves, some having reactions like chemical acids, and some like bases. They have been named accordingly, and we speak of acid and basic dyes. These groups, although of different colours, stain their own class of substances. Thus modified protoplasm as found in red blood corpuscles and commonly the cell protoplasm stains with acid dyes—the former most strongly—while the nucleus stains most strongly with basic dyes, the chromatin being most intensely stained.

By means of these reactions Ehrlich has described four or five varieties of leucocytes, which have all probably different origins and functions. To these, however, I shall have to return.

The more ordinary methods of chemistry have been applied in the investigation of the position of the element iron in the cells. This substance being darkened, even when in chemical combination with proteids, by sulphide of ammonium, or ferrocyanide of potassium and hydrochloric acid; in these tests, it was found that the iron is principally located in the nuclei, probably in chemical combination with an albuminoid called nuclein, to be mentioned more at length later on. But the method which has tended more than any other to throw light on the composition of the tissues is the method worked out by Lilienfeld and Monti, and published last year. It consists of a modification of the molybdate of ammonium reaction with phosphates, a yellow precipitate of phosphomolybdate of ammonia being formed.

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Their method consists in soaking the tissues in a solution of molybdate of ammonia for a greater or less length of time, depending on the firmness of the combination of the phosphorus in the tissues, then washing away the free solution, and reducing the precipitate with a solution of pyrogallop. This gives a brown colour where the phosphorus was—the intensity of the coloration depending on the amount of that element in combination.

Briefly, they found that muscle stains diffusely brown; kidney also diffusely from the phosphates in process of excretion; bone also very diffuse and dark from the calcium phosphates in the matrix, but in most other tissues the colour was most intense in the nucleus, slight in the cell protoplasm, and absent in the connective fibrillar tissue, or in the hyaline substance of cartilage. Where it was possible to distinguish the chromatin fibres in the nucleus, as in dividing cells, they were very deeply coloured.

This method has been since used to determine the nature of the colloid substance in the thyroid body—of recent interest in connection with myxœdema—and it was easily shown to be an albuminoid, phosphorus-holding body, and not mucin, which did not contain any phosphorus.

If we examine the nuclei in bulk we can extract from them by chemical means materials which possess the above reactions. Such quantities of nuclei can be obtained from yeast, or pus; the protoplasm being removed by repeated artificial gastric digestion, only the nuclei are left. This extract has long been known as nuclein. It appears to belong to a class of substances composed of a combination of an albuminous body with nucleic acid—some members of the class containing mostly nucleic acid, and some very little.

Nucleic acid contains about 10 per cent. phosphorus, and has a strong affinity for basic aniline dyes, hence the strong colour obtained either by molybdate of ammonia or the ordinary histological stains.

Apparently nuclein can combine with a further variable quantity of proteid forming the group known as nucleo-albumins. These can be obtained from almost any tissue containing cells, either by Wooldridge's method (who called them tissue fibrinogens), by soaking the minced tissue in water, and precipitating the nucleo-albumin by acetic acid, and redissolving precipitate in dilute sodium carbonate, or by Halliburton's method—that of grinding the tissue with sodium chloride, and throwing it into a large

quantity of water, and collecting and dissolving in dilute sodium carbonate the sticky substance which floats.

These substances exist in fluids of the body as well as in cells, such as the fluid of pus, synovial fluid, and the viscid material of bile. So that probably not only are they a proper part of the cell composition, but cells have the power of forming them as a sort of secretion. These nucleo-albumins are of great practical interest—

1. From the peculiar power possessed by some of causing rapid coagulation of blood.

2. Therapeutically, as in all probability the basis of the thyroid and other tissue extracts recommended in the treatment of various diseases.

3. Their similarity to bodies used to protect animals from infective disease termed alexins (Hankin).

To this last clause I would direct your attention more particularly. All protoplasm possesses in its original form certain powers of self-defence. Differentiation sometimes reduces this power, but such cells are guarded by others in our complex bodies, which allow these cells to work with less outside interference. Other cells with us have this power of defence exaggerated, probably through their continued contact with parasites, some of which are animal, and some vegetable. It is obvious that a single cell can have no power against an animal many times larger than itself. Hence those against which cellular activity are exercised are the unicellular organisms which are in most cases smaller than the cells of the body, and can enter and live in them.

Ruffer doubts if the higher animals can ever completely get rid of microscopical animal parasites, and cites the Coccidium oviforme of the rabbit, which is encapsuled but not removed—the Haematocephalum malaiae of ague which is notable for its recurrence throughout life, even after the sufferer has left the malarial district, and the protozoa which he believes to be the cause of cancer. But in diseases caused by vegetable parasites—as abscess, erysipelas, tubercle, &c.—the body is often able to kill the parasite, although the deformity caused during its residence may remain. With some, however, it is not so—the parasites are too strong, the cells are poisoned, and the animal dies.

In a few of these cases, and their number is increasing slowly, if the cells get a little outside help they are able to resist the disease.

This has most generally been done by small doses of the fluid in which the parasite was cultivated artificially, or small quantities of the micro-organism which had been weakened by physical or chemical means, or by its passage through another animal, being injected into the body. The cells are thus able to acquire a tolerance, and resist the inroads of the more virulent forms of that disease subsequently. To account for these things two great doctrines have been proposed—(1) that the blood-cells eat up the micro-organisms; and (2) that the fluids of the body are able to kill the micro-organisms when they get in contact with them.

With regard to the first of these methods, we know that the white blood corpuscles can be fed with various substances, and that their method of feeding is precisely similar to that of certain protozoa. Metschnikoff observed that these protozoa are able to devour micro-organisms, and by careful watching could see these micro-organisms undergoing various degenerative changes in the body of the protozoon, undoubtedly a process of digestion. That these constituted the food of the protozoa was evident to me long since. I have been in the habit of keeping certain fluids in vessels—small aquaria, in fact—in order to have these forms of life in connection with the summer histological class. I have noticed that the inhabitants of a vessel often changed. If the fluid appeared foul it contained bacteria, but after a time it became clear and very few bacteria were present, but many protozoa; these subsequently giving place to others—either from being devoured by higher animals, or dying from want of food. A repetition on a small scale of the great increase of owls which appeared during the plague of field voles in Scotland.

The white blood corpuscles, leading a free and independent life in the blood, and possessing all the animal functions well marked except reproduction, take into their interior any substance of the nature of food—such as small granules, dead or living micro-organisms. Some cells very similar in appearance to the others are able to devour large quantities of material, as normally takes place in the removal of the tail of the tadpole when it leaves the water, or abnormally in the removal of a catgut ligature.

The leucocytes which might have these functions have been examined by Ehrlich and Metschnikoff. As viewed in the fresh state it is difficult to distinguish them, but they have different reactions to the aniline dyes as to their nuclei and certain granules

which exist in the cell protoplasm, and thus we have four varieties of greater or less importance—

1. Small lymphocytes, with round nucleus and little protoplasm.
2. Large lymphocytes derived from the former.
3. Eosinophilous leucocytes with lobed nucleus, and with granules in the protoplasm, which stain intensely with acid dyes as eosin or rubin.
4. Polynuclear leucocytes, with deeply-lobed nuclei, or the lobes may be separated, and generally possessed of an attraction sphere. The nucleus stains with basic dyes, the granules with neutral dyes, the protoplasm remaining unstained.

The small lymphocytes are too young to have any powers of englobing foreign bodies. The eosinophilous cells, according to Metschnikoff, cannot, although this has been doubted by Hardy and Kanthack. But those which possess this power in the highest degree are the large mono-nuclear and poly-nuclear neutrophile cells. These cells have the power of taking up living bacilli. Single leucocytes containing bacilli have been picked out and placed in bouillon under the microscope, and the bacilli were seen to grow; but if the cells were allowed to remain in the blood the bacilli could be observed in various stages of digestion and destruction.

Under certain circumstances large quantities of cells gather to the neighbourhood of micro-organisms, as in an abscess. Generally the front ranks die, but reinforcements arrive and remain until the micrococci are either dead or removed. This process of attraction is termed chemiotaxis. Certain substances are formed by micro-organisms, it appears most likely by the decomposition of some dead ones. These substances attract the leucocytes, and being attracted they find and destroy other micro-organisms.

I may mention two examples of this amongst fungi. If a fragment of a green filamentous alga be placed in water with *Bacillus subtilis*, or other strongly aerobic micro-organisms, and the plant be illuminated with a small substage spectroscope, the bacilli will congregate in the yellow, not that they can appreciate that colour, but, as Sachs has shown in his "Physiology of Plants," oxygen is given off most freely by plants in this coloured light, and as these bacilli can move, and must have oxygen, they naturally move to where it is most abundant.

The behaviour of a myxomycetous fungus is much more instructive. The early forms of these fungi after the germination of

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the spore is similar to the amœba. After a time these amœboid swarm-cells join together by their edges, and join to others, until there is a single large mass of protoplasm with many nuclei termed a plasmodium, which grows in size, but retains for a long time its power of movement as a whole, so that it is like an enormous amœba in the form of a copiously branched reticulated or frill-like expansion, covering a surface varying from one inch to a foot, and in which the movement may sometimes be seen with the naked eye.

In DeBary's Comparative Morphology and Biology of the Fungi, Mycetozoa, and Bacteria (p. 450), we find a description of the behaviour of one, the *Fuligo varians* (Rostafinski), otherwise *Æthalium septicum*, a myxomycete usually found on old tan :—

“Vegetating plasmodia spread out on surfaces, which yield little or no nutriment, move towards bodies which contain nutrient substances as soon as they are offered to them—here, too, without regard to the direction in space in which the movement has to be made. If the plasmodium of *Fuligo* which usually lives in tan is spread out on the moist vertical wall of a glass, it remains in this position, other things being the same, as long as the surface of the glass is covered with a film of pure water. If an infusion of tan is added to the water, in such a way that the plasmodium is touched by it at one point only, it begins to move rapidly towards this spot, and gradually puts out numerous branches which dip into the infusion. A small piece of tan placed close to the plasmodium under similar conditions is quickly seized by a number of freshly protruded branches. The similarity in the effect of the fluid containing the infusion of tan and the solid piece of tan shows that it can only be due to the chemical constituents of the tan; what these are has not been precisely ascertained.

“If a plasmodium comes into contact on one side with other bodies dissolved in water, the opposite effect is produced—namely, repulsion of the plasmodia. Even a solution containing half or quarter per cent. of grape sugar produced this effect at first on Stahl's experiments, but the plasmodium by degrees became accustomed to it, and behaved to it as to the infusion of tan. A sudden change in the concentration of the saccharine solution, either by increasing it to a certain amount (two per cent.) or diminishing it, gives rise to similar phenomena to those first described. Stahl observed the same repulsions in experiments with saline solutions.

“If oxygen is excluded on one side, a movement takes place, as might

have been expected beforehand, towards the side where oxygen is admitted."

This effect of certain substances on the protoplasm of *Fuligo* gives the key to the explanation of immunity from the phagocytic point of view. Leucocytes, which would ordinarily succumb to a certain poison, become acclimatised to it if it be administered in sufficiently small doses, and thus are able to carry out their function even in a poisonous environment.

Apart from the active interference of the living cells the fitness or unfitness of the soil on which the micro-organisms grow is of the first importance. We know the blood of some animals resists bacteria to a remarkable degree, while some succumb to nearly every disease, and experiments have shown that even the fluids derived from the blood of some animals and freed from leucocytes, have a profound effect on some bacilli. Thus, *Bacilli anthracis* if placed in collodion tubes, and inserted under the skin of frogs, are killed, the leucocytes being unable to pass through the collodion film while the lymph can. In this case the frog is naturally immune to anthrax, and can only be infected by keeping the animal under unnatural conditions. Amongst animals naturally susceptible to disease we find that if rabbits and guinea pigs be rendered immune by injection, and the blood removed and allowed to clot, the serum has the power of either killing or attenuating virulent bacilli, which may be grown in it. The micro-organisms found in anthrax, erysipelas, tetanus, and pneumonia, are amongst those affected thus.

Again, the toxin produced by the tetanus bacilli can be isolated, and is found to lose its poisonous qualities if it be mixed with the serum of an immunised animal, or if the serum from an immunised animal be injected into a susceptible animal it immediately confers immunity. An important case bearing on this is quoted in the *British Medical Journal* from the *Riforma Medica*. Lesi describes a case of tetanus brought on by a wound from a piece of glass while walking over a heap of stable refuse. Symptoms appeared on the sixth day, and on the eighth day treatment was commenced by the administration of serum. Four doses—i.e., 50cc., 20cc., 10cc., 20cc.—of serum from one of Tizzoni's immunised horses. After this the patient rapidly became better, and was able to leave his bed six days from the date of admission.

In these cases something must be in immunised blood which is

not in ordinary blood. Buchner, who leads the humoral side of argument in immunity, holds that it must be some chemical change, and here we find the importance of the nucleo-albumins alluded to a short while back.

Wooldridge, when working with his "tissue-fibrinogens," extracted from the thymus or testis, found that in some cases injections rendered the animal immune to anthrax.

Wright repeated these experiments, and states that he had never made a series of experiments without obtaining either a prolongation of life or complete cure by means of "tissue-fibrinogen" injections, but noticed that, at the same time, a very extreme degree of leucocytosis was brought about. Later by injection of nuclein alone he succeeded in both prolonging life and producing the condition of leucocytosis.

Vaughan, Novy, and M'Clintock have shown that nuclein obtained from testes or yeast was able to kill *Staphylococcus pyogenes aureus* or *Bacillus anthracis* in from five minutes to one hour, the time being largely dependent on the amount of dilution. The tissue fibrinogens used by Wright are very powerful chemical re-agents; but somewhat different in their action, as slight difference in the method of preparation may, for example, prevent the clotting of blood, or make it clot with extreme rapidity, and there are several substances produced by bacteria on which they may act. Thus, the investigation on bacterial products have shown the following poisons:—

1. Those produced during life by the metabolism of the bacteria—(a) Toxins, bodies of an alkaloidal nature; (b) Ferments similar to the proteids in their re-action.

2. Bodies of an alkaloidal nature produced from the substances in which they live.

3. Bodies of the nature of albumoses produced by the death and decomposition of the bacteria. These last possess the highest chemiotactic power.

With some of these poisons the nucleo-albumins may unite and thus neutralise them, or they may have an antagonistic effect as obtains amongst some other vegetable alkaloids.

We have thus two sides to the argument—first that the leucocytes eat up the bacilli alive, and secondly that the bacilli are killed and the phagocytes devour them like any other dead material which it may be necessary to remove from the body. But perhaps both sides are right. We may have two separate actions, local

and diffuse—local where the cells are able to destroy the bacilli at the place of entry, diffuse where the bacilli get beyond the point of entry and are killed or weakened by the fluids, or when the poisons formed by the bacilli are neutralised or weakened, either condition of weakening acting as an acclimatising agent on the leucocytes, which thus get the victory over the living organisms, while the poisons are excreted by the ordinary channels. The fluid most directly concerned in these actions is the blood. This we must look on, not as simply a body fluid, but as a tissue. Certainly it is a fluid, and acts as a fluid in carrying soluble substances to various parts of the body, thus undergoing a constant change. But along with this variable moiety it has a wonderfully constant moiety, and this must be maintained by cells in some part of the body; it is probable that the leucocytes do a great deal. Hunter has found that the removal of the spleen renders the animal more susceptible to certain chemical poisons. Bardach has shown the same for bacterial poisons, and whatever function the spleen possesses it appears to be largely connected with maintaining the balance of the blood composition.

Is it not possible then that the bacteria which first find entrance to the body succumb, by their death they give off albumoses which attract more leucocytes, some of these leucocytes may either succumb, and by their decomposition give off nucleins which assist in the destruction of the bacteria; or the albumose which attracted the leucocytes may at the same time cause them to secrete some neutralising albuminoid?

We have seen that by small doses of bacterial poisons these leucocytes may become so acclimatised that they are able to endure, in some cases, for the remainder of the animal's life. May they not as easily be caused to secrete some form of nucleo-albumin, possibly to a greater extent than normally takes place, and thus be able to protect the body against any future attack of the disease. In that way the cells act on the bacteria, either directly or by the blood fluids, the composition of which is in their own control.

ART. II.—*The Medical Care of Children.** By HENRY C. DRURY, M.B. Dubl.; F.R.C.P.I.

THIS seems to me to be a quite distinct and separate branch of medical practice, presenting peculiar difficulties such as are met with in no other branch of medical work, and yet one to which the attention of the student is little, if at all, directed. In the prospectus of a hospital of this town for the present session, I noticed, under the heading of "Medical and Surgical Wards," that clinical lectures were given in these subjects on alternate days, and that each bed was visited daily by the physician or surgeon on duty, so that students might note the progress of each case under treatment. Another paragraph announced that there was a separate children's ward, so that students had ample opportunity for studying the diseases of children. I thought it a very candid advertisement, which might suit most, if not all, of our teaching institutions. The latter part might be paraphrased thus:—"There is a ward for sick children here: the students may pick up some information about their cases if they like to try for themselves." It reminds one of the testimonials one sometimes sees or hears of—Mr. A. B. has been a medical student for seven years and has had ample opportunity of obtaining a sound knowledge of medicine, surgery, and midwifery.

I am not here to criticise my seniors, but I do not think that clinical teachers, as a rule, pay sufficient attention to the instruction of students in the disorders and treatment of infancy and childhood. Do not mistake me. I am not advocating, nor do I mean to advocate, any special course for students in the diseases of children. We have possibly too many special courses already: some, indeed, with less claim, I think, from a practical point of view, than this subject.

Children are often among the very first patients men are called upon to treat after they have obtained their medical qualifications. What is their real qualification in this matter, as a rule? They have a scale by which they can calculate the dosage of a drug compared with the dose for an adult; they know that children bear some drugs remarkably well, others badly; they know that children are exceedingly liable to infectious diseases; they know

* Being the Presidential Address at the opening meeting of the Dublin University Biological Association, November 23, 1893.

that it is very difficult to find out what is wrong with them, and that they are very hard to manage ; and here almost ends the whole stock-in-trade. They have learnt but little of children's diseases and treatment in the schools. They have to depend largely on the experience they gain for themselves, though some few make a special study of the subject after they have got rid of the nightmare of examinations.

Men and women are strange creatures in many ways—*e.g.*, if they feel sick themselves they often think their case so serious, obscure, and altogether out of the common, that only the very best and most experienced doctor they know of, or perhaps have heard of, away far in another town or country, is at all likely to be able to cope with their disorder. They send for or go to him, feel better, and “mention” him ever afterwards. But if their first-born, even though it be the apple of their eye, gets ill, the frequent, if not usual procedure, is to administer all the household remedies for some days till baby is much more sick ; then send for “Young Dr. So-and-so,” or Johnnie Smith, who has just finished walking his hospitals, as it is “only baby who has a bad teething fit !”

The seriousness of this subject will be manifest to us when we consider the gigantic proportions of the infant mortality in our large towns and cities. Taking for comparison the general mortality of the population at the high figure of 25 per 1,000, the mortality amongst infants in the first year of life reaches the fearful figure of 200 in every 1,000 born (Henoch). No doubt much of this is quite inevitable, but, no doubt also, an enormous proportion is due to preventable causes. Two great classes of causes tend to swell this great death-roll :—One, the natural development of the child's body, tending to evoke pathological conditions—*e.g.*, the changes from foetal conditions of life, active developmental changes taking place in the nervous system, glands, skeleton, teeth, &c. ; second, causes largely found in their surroundings—the want of care manifested by their natural guardians either through ignorance, want, or carelessness ; foul air, bad feeding, cold, hunger, inherited diseases, illegitimacy. Still I hold that much of this mortality is preventable by judicious medical treatment, and by the better education not merely of our medical students but of the mothers and daughters of our country.

Every child life should be cherished. There is still plenty of room in the wide world for all who may be born into it. Whether

there is or not—and this is a question for the political economist rather than for the medical man—it is our obvious duty to preserve every infant life. There is no reason why a lowly babe should be less cared for than a high born. We know not what great brain that little body may be building up; what future Newton, Stephenson, Wellington, may be lying helpless and dependent for its very life upon our skill. Great men have not all first seen the light in palaces: some have been cradled even in a manger. Of the very poorest, as of the richest, we may say with Byron—

“A lovely being scarcely formed or moulded,
A rose with all its sweetest leaves yet folded.”

The great soul of Kingsley, that grand “Muscular Christian” (as they attempted in ridicule to call him), is stirred to its deep depths with this thought:—

“Oh! it is a distressing thing to see children die. A dying child is to me one of the most dreadful sights in the world. A dying man, a man dying on the field of battle—that is a small sight; he has taken his chance; he is doing his duty; he has had his excitement; he has had his glory. I am not horrified or shocked at the sight of the man who dies on the field of battle; let him die so. It does not shock or horrify me, again, to see a man dying in a good old age, even though the last struggle be painful, as it too often is. But it does shock me, it does make me feel that the world is out of joint, to see a child die. What that boy might have been, what he might have done as an Englishman, if he could have lived and grown up healthy and strong!”

“We are the fools of smoke and noise; because there are cannon-balls forsooth, and swords and redcoats, and because it costs a great deal of money, and makes a great deal of talk in the papers, we think: what so terrible as war? I will tell you what is ten times, and ten thousand times, more terrible than war, and that is, outraged Nature—Nature, insidious, inexpensive, silent, sends no roar of cannon, no glitter of arms, to do her work; she gives no warning note of preparation, no protocols nor any diplomatic advances, whereby she warns the enemy that war is coming. Silently, I say, and insidiously she goes forth. No! She goes not even forth. She does not step out of her path, but silently by the very same means by which she makes alive, she puts to death, and so avenges herself of those who have rebelled against her. By the very same laws by which every blade of

grass grows and every insect springs to life in the sunbeam, she kills, and kills, and kills, and is never tired of killing, till she has taught man the terrible lesson he is so slow to learn, that Nature is only conquered by obeying her."

In the treatment of children we have a field free from loathsome quackery and dissimulation: no imagery evils complained of to be appeased by a guileless "bottle." The little sufferer recites no symptoms, so we may leave our homœopathic bottle-box at home. Here we must go to the root of the matter, for attacking the symptomatic grass will but mask the deeper ramifications of the scutch-root which gave it origin. This, too, is a field that will repay cultivation. Two great essentials are patience and observation. Can these be over-cultivated for successful general practice? They are essentials here also, as you may see with wonder and admiration if you study our best classical medical writers. There is no training in these respects so good as that obtained at the bedsides of children.

I can but note very shortly some of the requirements for a successful treatment of the sick child. First, I believe, above and irrespective of all purely medical attainments, is manner. If the art of gaining a child's confidence at the very outset is wanting, the treatment will be at best a haphazard affair. The art, if naturally present, in even a small degree, may be successfully cultivated; but if naturally absent, I fear will generally remain so. This might be easily illustrated and enlarged upon. Suffice it to say that we have to do here with beings who act more from instinct than from reason, and who in addition are perhaps in a state of disquietude and irritability, so that alarm or fear once aroused is not easily allayed. Your imposing manner, then, may be left at the door, your fluent tongue kept for the study or social gathering; neither will help you here, either may prove a hindrance. A kindly smile and either silence or a word of sympathy will be far preferred by the monarch of the cradle. Your hurry may be ever so urgent, but must be forgotten: patience, quiet voice, and gentle bearing will save more time and alone gain the needed confidence.

Again, if, as I have said, success in ordinary practice depends greatly on the faculty of close observation, a hundredfold more does it do so here. You have no history or recital of feelings from the sufferer. The real information to be obtained from parent, nurse, or friend, may be *nil*. It may, indeed, be copious

as far as words go, but at the same time worthless in effect. At best, it is frequently disjointed, not to the point, emphasised in particulars of least importance, and explained from a non-professional standpoint. Yet parents and nurses are good observers, as a rule, so we cannot dispense with the recital, but must, as we listen, connect, apply, rearrange the emphases, and make our own explanations, while all the time we follow with our eyes every motion, curve, and expression of the little patient in question, and note every sound that escapes from his lips. On observation, then, must be our chief reliance, and what an enormous proportion of our information is to be gathered from it alone! To take some particulars:—The complexion may be clear and delicately tinted, though on the whole pallid, with a faint bluish undertint, as in the tubercular; if cyanosed, it suggests a respiratory cause; a leaden or earthy tint, especially with great pallor about the upper lip, will frequently be found with gastro-intestinal trouble; the swarthy (*café au lait*) though pallid face, may put us on our guard for congenital syphilis; in the spasmody stage of whooping-cough the face becomes swollen, often ecchymosed, the eyelids puffy, the conjunctivæ congested and bloodshot; the sunken, vacant eyes, with dark areolæ around them are indicative of great collapse.

The expression is most noteworthy. The healthy child's face should be smooth and placid, unruffled by the lines and furrows which result from the passions, pains, and cares of later life. So surely does the face indicate disorder, that it will not unfrequently indicate even the seat of the disease; so that M. Jadelot has pointed out certain lines in the infant face which by their position indicate the seat of the derangement:—

1st. The *oculo-zygomatic line*, from the inner canthus of eye downward and outward to the cheek, a little below the malar eminence—this points to derangement of the brain and nervous system.

2nd. The *nasal line*, from the upper part of the ala nasi curving down and outward round the corner of the mouth, said to be never absent in gastro-intestinal derangement.

3rd. The *labial line* begins at the angle of the mouth and runs down and outward; it is a fairly trustworthy sign of disease of the lungs and air passages, and will generally be accompanied by rapidly moving nares.

We may observe also the condition of the pupils, the presence

or absence of squint, and, if the child is asleep, note if the eyelids are well closed, as imperfect closure is a common sign of weakness.

The features, again, may help us. In rickets, the head is elongated, the forehead square, the face puny, the lower jaw especially small; in hydrocephalus, the head is large and globular, surmounting a small face with pointed chin; in syphilis, the forehead is prominent, the angles of the frontal and parietal bones surrounding the anterior fontanelle form four bony prominences, which have suggested the term "natiform skull," the bridge of the nose is broad and flat, and the eyebrows very scanty or absent.

The child's attitude should also engage attention. A healthy infant lies with limbs semi-flexed, and if on his back inclines one cheek to rest on the pillow. The attitude of the arms, and indeed of the legs, suggests the position *in utero*, the hands semi-closed and brought up to the level of the neck. When the limbs and trunk are rigidly stretched out, tetanus is strongly suggested. When the child is unconscious, or in great weakness and prostration, he will be found lying flaccid on his back, with face to ceiling. If found on his side, curled up and with head retracted, a frown will probably be seen, together with the oculo-zygomatic line, arousing a very strong suspicion of cerebral irritation, or, if there is opisthotonus, of spinal irritation. Another attitude is that often assumed in abdominal discomfort and in rickets, when he persistently lies on his face or even rests on elbows and knees. Where there is intolerance of light, as in cerebral irritation, the face will be buried in the bedclothes. In the normal state the child should lie quietly, not twitching or tossing about, as in fever; nor kicking off the clothes, as in rickets; nor spasmodically flexing and extending the legs, with suppressed cries, as in colic.

Even the cry of a child is often instructive, and should not merely call forth from you impatient muttering. No doubt, a healthy child frequently cries. Alas! too frequently, you say. But this is his only mode of expression, it may be of hunger, thirst, discomfort, of dislike to a stranger, not to mention a doctor, whose presence is suggestive perhaps of nothing but nauseous powders and draughts. But all this is expressed with lusty good will, and the stronger the better, if it is to be at all. It is not causeless, and you should find the cause; the nimble *pulex irritans* is a simple but efficacious one. The cause may be far-fetched, as in a case about which I read the other day of a small street gamin who was in hospital with a broken leg. Shortly

after saying that it was not hurting him in the least he was found crying bitterly. On being asked the reason, he said, "I wouldn't ha' minded a car, but it was a donkey cart as done it." Humiliation was the cause here, and children feel humiliation easily and keenly. Terrible mutilation or mortal sickness after the immediate pain is over will not disturb a little patient as much as cold feet or a sharp word.

Apart from these general considerations I do not say there is much information to be gained from a child's cry, but there is some. Sharp, violent fits of crying, with vigorous movements of the legs usually indicate colic. The sudden, sharp, single, piercing cry uttered at intervals, while the patient lies in a stupid, drowsy, semi-conscious state, is but too suggestive of meningitis; as is also the hoarse, grating cry, of syphilis. In contrast to these, note when the child does not cry. In profound weakness, as, for instance, that so often brought on by diarrhoea, he makes no attempt to cry; or if his discomfort is great the face contorts—the form is gone through but no sound comes, he is too weak to utter it. Again, in grave pulmonary affections breath is too precious, and the anxiety to get it too great, to waste it on a long expiratory cry, so he does not, for he dare not.

Lastly, we should see if the child can or will take food, noting at the time both suction and deglutition. Dyspnoea and acute fever cause suction to be performed in short snatches; syphilis also necessitates pauses for breathing. In thrush or ulceration, suction or deglutition is performed evidently with considerable pain. If the throat is sore, he coughs frequently and makes a noise with deglutition. In great prostration, if he swallows at all it is a hopeful sign.

We have already gained much information without laying a finger on the child. If now the mother or nurse exposes the body (which it is always well to have done thoroughly if possible, though most children resent it) we can count the respiration. Note if it is regular or irregular, or perhaps sighing, or Cheyne-Stokes; whether there is severe dyspnoea with indrawing of the ribs. Protrusion of the praecordial region may be seen, denoting dilated and hypertrophied heart. The pulse may be often counted by watching the heart's impulse—not that you usually gain much information from that, unless it be infrequent or irregular, which raises the fear of meningitis. The slightest thing raises the pulse-rate in the child. The presence of a stranger in the room

is more than sufficient, so much so that even in jaundice, where a very infrequent pulse is the rule in adults, there is, as a rule, no diminution in the rate of a child's pulse. If the abdomen is scaphoid or distended, the fact should be noted; also the general nutrition of the body, and any other marked condition that may be present.

I have not attempted to exhaust all the items of information to be gained from mere inspection with an observant eye, but simply to indicate that there are such, and that they have deep import and meaning, more so than can be gained by similar examination of the adult, and infinitely more useful—first, because they may be our only source; and, secondly, because they are not altered by a reasoning mind, whether prompted by nervousness, anxiety, fear, or wilful deceit.

Once mere observation gives place to practical examination we have the real difficulties to overcome. The mere attempt is very often the signal for screaming and resistance, which, in spite of all efforts of mother, nurse, or yourself, may compel you to give it up and rely alone on your observation and the history obtained. In such cases, if you consider it absolutely necessary to make an examination, you may have recourse to chloroform. Though it is necessary to formulate a definite plan, it is advisable not to try to carry it out rigidly in any regular order of examination—certainly not in the order usually employed with an adult. A good rule is to commence with auscultation and to end with examination of the mouth, because you have the best chance of hearing the sounds of the chest without exciting crying at the commencement, and of all procedures, examination of the mouth is most likely to cause it.

I think that the best method of auscultating children is by directly applying the ear to the chest (in some cases a clean handkerchief intervening). The mere look of a binaural stethoscope in position is enough for most children; besides, I personally prefer a plain wooden one to it. It is very difficult, however, to manage a wooden one quickly and apply it frequently without hurting a child. A child should be sitting-up while the chest is being examined; the sounds are loud and distinct; you can very soon accustom yourself to them as heard by the direct method; can examine front and back rapidly, and are less likely to frighten. If the child cries do not give up: during the deep inspirations in the interval of crying any abnormal sounds that may be present

can be well heard, so that crying need not interfere altogether with the examination.

Percussion is even more objected to. The child should be kept sitting-up and straight. Percussion must be made during inspiration and expiration on each side, as a wonderfully different note will be obtained by percussing during inspiration on one side and expiration on the other, especially if he is crying violently and so emptying the chest as much as possible during expiration. Any case which you think it necessary to auscultate you should not neglect to percuss, so as to control one by the other.

During each of these operations the heart is to be examined at the same time, but, owing to its excited action, on account either of the presence of a stranger or of crying and struggling, it is seldom possible to make out any but coarse lesions by either auscultation or percussion, and it must be remembered that, owing to the delicate and yielding chest wall, undue pressure of the stethoscope may cause a distinct murmur. The abdomen may be examined in any position the child likes to assume. The warm hand must be slipped quietly under the clothes and the palm laid flat, every part being palpated separately, and when all the information possible is obtained, try gradually and quietly to expose the abdomen if necessary, but if you begin by stripping down the clothes such screams and kickings will result that all endeavours to gain information will be futile.

Any opportunity may be taken to pass the hand over the head, noting the condition of the fontanelle, whether closed or open; and, if open, whether depressed, as in prolonged, exhausting diseases; or distended, as a sign of increased intracranial pressure. Complete closure ought to take place between 18 and 24 months.

The mouth should be examined and, in young children, thoroughly explored for ulcers, aphthæ, &c. This will generally be resisted vehemently, and no persuasion will get them to let you see even the tongue, much less the fauces. If all fair means fail you may be forced to open the mouth by the following expedient. The point of the first finger is placed against the lower lip, and slipped with the lip over the lower teeth. The child will not bite you, as in so doing he would very much hurt his own lip, but yielding to the pressure of your finger will open to the fullest. If then the nose is held he will have to depress the tongue to breathe, and so a glimpse may be got of the fauces or even the back of the pharynx.

I think the easiest and most satisfactory way to take the temperature is between the scrotum or labium and the thigh. It is very difficult to get the mercury well and closely covered in the axilla, besides, the arms are seldom kept to the sides by children, consequently the axillæ are open and cool. It is difficult, too, to keep the arms at rest while the thermometer is in position, and any appearance of restraining the arm is greatly resisted. Taking the temperature in the mouth is both dangerous and disgusting, so should only be done in very special cases and not as a general rule; neither do I think it right to make a rule of taking it in the rectum; the same reasons apply. Between the genitals and thigh, however, you have the parts generally in apposition and therefore warm; the instrument is much more likely to be kept quiet than when under the arm; hence, once in position, the child's attention is no more directed to it. It is said to give a lower reading here than in the axilla. I have not found this to be the case, nor can I see why it should be so. It is not a more dangerous position than the axilla, and I do not think the position itself should shock any well-balanced mind.

The difficulties here already foreshadowed are not exhausted. More perplexing still are the strange features which may sometimes invest the commonest forms of disease, and shroud them in confusion and obscurity. Such features are chiefly due to the great reflex excitability of the nervous system in childhood, and to the increase of this excessive excitability which readily follows any deviation from the healthy state, together with the immaturity of the higher nervous centres which, in the adult, to a great extent hold the lower nervous system in control. The result is that conditions which in the adult would only give rise to local symptoms, may in the child bring about such great general disturbance as to entirely overshadow the local cause. One example may be given here. Convulsions in a child and in an adult have vastly different significance. In many cases in the former they may be due merely to some simple reflex irritation, as, for instance, an indigestible mass in the stomach, while in the adult a similar cause might only effect some discomfort locally, or possibly emesis.

Variations of temperature are often a good example of the great reflex excitability of the nervous system. You have all noted the sudden and highly febrile attacks so frequent in children. The pyrexia, we well know, is in very many cases far out of proportion to other symptoms, and also in very many cases gives no reliable

index of the seriousness of the disorder. Even in a given case, where it is some guide, we do not mark a high range of temperature with the same gravity as we should the same degree in a similar case of an adult. At the same time we cannot neglect the observation of temperature. It is as valuable a help to diagnosis as in the adult, if by practice we are able to place the true value upon it. Observations prolonged over several days are of infinitely greater value than single ones, even though the variations of temperature from normal be very slight. An insignificant cause will run a child's temperature up rapidly in a few hours to 103°—4—5, but a fall will occur almost as quickly; whereas a constant range of two or three degrees above normal is of much more serious import, and even constant depression of temperature is always, I believe, a sign of malnutrition. While on the subject of temperature, we may be reminded of the ease with which an infant loses its bodily heat, and therefore how easily it is affected by exposure. During the first three or four months of life it may even be said that the temperature has a tendency to fall below normal. At this age heat production seems to be carried on with but little energy, so that in cases of faulty nutrition, cachexia, &c., the temperature will often be found surprisingly low. It is even said that at this age diseases such as pneumonia, usually highly febrile, may run their course without any rise of temperature or even with a subnormal temperature (Henoch).

This easy loss and slow production of heat accounts for the great liability of children to catarrhs. The coughs, colds, and bronchial attacks, the frequency of gastritis and diarrhoea otherwise unexplained, are yet thus easily guarded against. I am no advocate for coddling, but I think there is an immense amount of teaching required for the average mother in the clothing and protection of her child, and from whom is it to come if not from the medical man who attends the home? There is an old wife's idea that when an infant reaches a certain age its clothes should be shortened, and shortened they are, whether the given date falls on January 1st or July 1st. Just in the same way that the school proprietor has a rule that fires are to be dispensed with on a certain date, and out they go though the snow is on the ground. Infants are then seen with their bare legs and feet chilled and blue, even the abdomen uncovered, save by loose hanging clothes. What wonder that they do not thrive, that they get diarrhoea or bronchitis, with many lesser evils?

The opposite error is, on the other hand, sometimes met with in the children of too fond and anxious mothers; even though able to run about they are literally smothered in wool, kept indoors in tropical heat, except when the weather is of the finest, and covered with additional wraps when they do get out. They are in the condition of hothouse plants. The fresh air of heaven is their bane; it gets at them sometimes though, and they shrivel before it.

Infants should be at all times warmly clothed—the extremities even should never be allowed to become cold. Children who can run about should be encouraged to take plenty of exercise. They will keep themselves warm by that natural means. Plenty of fresh air and exercise will develope the muscles, broaden and deepen the chest, and harden the constitution against the constant changes of our ever-varying climate. The time too soon comes now-a-days when they must set about poring over miserable books, their limbs at rest, their body bent, their lungs oppressed by the foul atmosphere of class rooms. I say then it is your duty to instruct in these things. To remonstrate with the errors of ignorance when you meet them should be just as much a part of your medical care of the children of a family as the skilful treatment of a given disorder. These are all surely prophylactic measures, and therefore the highest ideals of modern medicine.

The last subject for which I will ask your attention, and to my mind one of the most important subjects for study in the care of children's health, is food. I believe, too, it is the subject about which most mistakes are made, about which young practitioners are expected to know most, to which they devote least study, and with which they can do most good to their patients both old and young, if they will but make it a study. A very large proportion of the ills of early child-life are some gastro-intestinal trouble. Drugs will avail you little here; a rapid adaptation of diet to the requirements of the case will work wonders, while neglect in this matter will prove disastrous either to your reputation or the patient's life. The subject is such a familiar one that you might be tempted to regard it with a certain amount of contempt, but I assure you it must not be so regarded. If you look into it, and especially when you come in contact with it practically, it will demand your respect, for it is not simple but exceeding complex. Different periods of childhood have their very different requirements; to this add the different conditions of health, all the varieties of food with their varied properties, and the subject

enlarges indefinitely. You cannot pin your faith to one or two forms of diet; cases will crop up that will require you to have large resources to fall back on, and even then occasionally cases will occur which will threaten to baffle all your knowledge. I have not time at my disposal to do more than refer this all-important subject to some general principles. The first great general principle in regulating diet is that distinct and well-defined intervals should be observed between meals. When food is put into the stomach and intestines they should have time to digest it, and a period of rest should follow before they are again called upon to discuss fresh food. The first lessons of physiology, or even common sense, will suggest this rule, yet still it is very frequently ignored. There is no more pernicious habit, from the point of view of health, than that of constantly satisfying the gustatory sense; whether indulged in by the sucking infant or the adult, it is degrading and injurious. I must use the strong word "abominable" to describe the practice which induces a child to make a god of his belly. Such a child will sacrifice anything to his belly, and nothing to anything else. If he is in sulky temper and crying he is promised sugar-candy to stop—he stops, accepts the offering, sacrifices it to his god, and soon wishes to make another sacrifice. A plain, wholesome meal is set before him; he only eats it under promise of plum pudding when it is done. Every time he is wanted to do anything a reward is held out of "something to eat." The bad habit is begun early; every time the infant cries the cries are stopped with a nipple, and almost reflexly suction begins.

Now, although the infant's stomach gets rid of its food quickly, and digestion is rapid, it is only capable of holding about one ounce. What wonder then that many babies are in a constant state of nastiness from regurgitating milk curds? No proper interval is allowed between feeding times. When he cries for any cause he is given the bottle to endeavour to stop him, which it often does. He thus learns the bad habit, and insists in his own way in keeping it up, but being a natural baby and not out of the common, he gets colic, and howls to good purpose, for our turn comes now. We ease him for a time, to be sure, but may not imagine the real reason of the colic. Could child or adult fail to suffer from dyspepsia if the stomach were never allowed to empty itself completely and rest naturally? This is really the foundation of many of the cases of irritable stomach, which we meet with in early, if not even in later life.

Next, about the quality of food. We have a great natural sample of infants' food—viz., the mother's milk—that must be our standard; any departure from this must be made with due deliberation, and in very special circumstances. For at least the first three or four months no starchy food is allowable, no amylolytic ferments being present during this period in the digestive fluids. When the teeth begin to appear, nature ordains that their presence shall be unpleasant to the mother's nipple, so she should begin to restrict the supply from this source, and replenish it by some other. If a rubber nipple and bottle have been substituted for the mother's breast, the lesson of the teeth is often neglected, and the method of feeding, rendered so easy by practice, is persevered in too long. As the teeth develop, they are evidently meant by nature for more solid food, so it must be provided in the shape of light, easily-digested substances, chiefly farinaceous. Changes, however, should be very gradual. Later on a healthy child should be set down to a regular, plain, varied meal, compelled to eat slowly, and leave it immediately when satisfied, without being encouraged to eat more. Finally, as to quantity, for the first ten days about a pint of milk will suffice for the twenty-four hours; in the later months of lactation gradually increasing the amount up to about three pints. We cannot lay down hard and fast rules in this matter. As children vary in other things, so they will vary in food requirements. Satisfy hunger, but do not overfeed; the good old saying—"get up from your dinner with an appetite," is a safe one if not pushed too far, and there would be fewer dyspeptics if it were more honoured by being oftener observed.

These little children form too big a subject for one evening's consideration: I have but tried to give you a sketch. The baby whose arrival summons you from bed at midnight has no special grace in your eyes, but it may contain a soul that will soar to loftier heights than you have ever reached, and you, when your hair is grey, may look back with pride to your care of that infant. To no other profession is such a privilege given. Is it not then worthy of your deepest study and attention? To me it seems a grander thing to save a life at its commencement, with infinite possibilities before it, than the life that has had its chance, perhaps reached its glory, or, alas! perhaps wasted its opportunities, and sunk to a level little higher than that of the beasts that perish.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Pyogenic Infective Diseases of the Brain and Spinal Cord. Meningitis, Abscess of Brain, Infective Sinus Thrombosis. By WILLIAM MACEWEN, M.D. Glasgow : Maclehose. 1893. Pp. 354.

Atlas of Head Sections. Fifty-three engraved Copper-plates of frozen Sections of the Head, and fifty-three Key Plates, with descriptive text. By WILLIAM MACEWEN, M.D. Glasgow : Maclehose. 1893. 4to.

A WORK such as this helps us to realise the marvellous progress made in medical diagnosis and surgical methods within recent times. Only ten years ago operation for brain abscess was looked on as an almost hopeless proceeding, holding out but a small prospect of recovery. In this opinion Dr. Macewen in great part agreed. But, now "he regards an uncomplicated cerebral abscess, early recognised, accurately localised, and promptly operated on, as one of the most satisfactory of all intra-cranial lesions, the patient being at once relieved from a perilous condition, and usually restored to sound health." Even in the more serious lesions of infective meningitis and sinus thrombosis, which if left to run their course lead infallibly to death, "early recognition, followed by operation, have in certain cases checked the disease, and as our experience ripens concerning them, the results will doubtless improve."

It is unnecessary to remind our readers of what a large share Dr. Macewen has taken in accomplishing this progress. The work before us, with the magnificent atlas which accompanies it, is a record of work of which the author and British surgery may well feel proud.

The book is divided into six chapters, dealing with (1) the Surgical Anatomy of the Head; (2) Pathology of Cerebral Abscess and Meningitis; (3) Symptoms of Abscess of Brain and Meningitis; (4) Thrombosis of Intra-cranial Sinuses; (5) Treatment; and (6) Results. The text is profusely illustrated with original drawings, wood engravings, and photogravures, and there is a copious and well-arranged index and table of contents. Detailed records of

sixty-five cases are given, many of them veritable marvels of surgical achievement. Altogether the work is one which cannot fail to mark an epoch in brain surgery.

Since so large a proportion of cerebral inflammations have their starting point in disease of the temporal bone, the anatomical section begins with a most minute description of this part. A very detailed account is given of the bone at different periods of life, and the cavities and openings in it receive the attention they so well merit. The tympanum, with the seventeen principal apertures by which pathological processes may extend from it, and the mastoid antrum are fully described. In order to reach the antrum the opening may be made at the base of a triangular, generally somewhat depressed, area called by the author the *suprameatal triangle*. This is formed by the posterior root of the zygoma above, the portion of the descending plate of the squamous which forms the arch of the osseous part of the external auditory meatus below, and a base line uniting the two, dropped from the former on a level with the posterior border of the external auditory meatus. Of 450 temporal bones examined, this triangle was present in 99.5 per cent., and well marked in 94.6 per cent. It is, therefore, a valuable land-mark. In opening the antrum the higher and closer to the posterior zygomatic ridge the opening is made the more surely will the Fallopian canal escape injury. In the description of the middle fossa of the skull we read—"In relation to the antrum and tympanum, the floor of the fossa media occasionally projects outwards beyond these cavities, and in two instances met with by the Author the floor of the middle fossa actually overlapped the upper portion of the outer wall of the antrum, so that in order to reach the antrum, one had to perforate obliquely upwards and inwards."

The sections, many of which are figured in the Atlas, show a somewhat unexpected relation of the cerebellum to the posterior fossa of the skull—namely, that towards the middle line the cerebellum extends above the plane of the lateral sinus, and reaches between the cerebral hemisphere nearly the level of the orbital roof, "and also projects downwards into the spinal canal considerably below the foramen magnum, so that it embraces not only the medulla, but in many instances even the upper part of the cord."

From the sigmoid sinus two considerable veins pass to the exterior of the skull; these are the mastoid and posterior condylar.

The latter is the larger and more constant, and a series of measurements show that its size is greater than usually stated. Through either of these openings pus may find its way from the interior of the skull, indicating intra-cranial suppuration and probable thrombosis of the sinus. When the discharge finds exit through the posterior condylar vein, abscess in the superior triangle of the neck not uncommonly occurs, and "Short of abscess there is often a degree of inflammatory action in this region which produces tenderness on pressure, occasionally so acute as to cause the patient to cry out when touched." The important relations of the sigmoid sinus to the cerebellum are well shown in several of the plates in the *Atlas*.

A most ingenious schema of the sinuses, and of their connection with the veins, both intra- and extra-cranial, is given on p. 31. A large vein is sometimes found running over the petro-squamosal fissure to join the lateral sinus—"This is a remnant of the primitive course of the lateral sinus, which in early foetal life is continued forward over the petrous bone, opening into the external jugular through a foramen, piercing the base of the squamous, and issuing at the external extremity of the Glaserian fissure."

The alterations in the course of the blood-flow which follow thrombosis of each of the sinuses are fully described—as is the mechanism by which the aspiration of blood from the cervical veins during inspiration is prevented from reaching the sinuses. If this aspiration extended to these vessels, the brain would experience a sudden propulsion forward of blood at each inspiration which would give rise to serious symptoms. Numerous safeguards are provided against this. Here we notice a geographical slip by which the Rhine is made to flow into the Lake of Geneva.

In the description of the membranes attention is called to the danger of haemorrhage into the subdural space, owing to the readiness with which blood, even after coagulation, can shift its position and reach the basal parts, where its pressure may give rise to serious consequences. To obviate the risk of subdural haemorrhage in the course of removal of very vascular intra-cranial tumours, "the author sometimes divides the operation into two stages—the first to secure adhesion of the membranes, thereby obliterating the subdural and subarachnoid spaces, and secondly, proceeding with the tumour removal." Not only blood but pus may gravitate in this space. "In intra-cranial irrigation of abscess cavities, great care must be observed in order to secure the

extra-cranial return of the fluid injected. Were the nozzle of the syringe introduced into the subdural space, the contents of the syringe might be forced into it. When this occurs the fluid may return quickly; occasionally it is retained, and when it is so, it has probably carried with it particles of the pus with its pathogenic organisms, washed from the vicinity of the wound to distant parts, so that the poison is further disseminated."

It is suggested that the Pacchionian granulations may serve not only to draw off cerebro-spinal fluid into the sinuses, but that if the subarachnoid pressure be low, serous fluid may pass from the sinus to the subarachnoid cavity. This, we should think, is most improbable.

In the second chapter the pathology of the closely-related and often coincident abscess of the brain and infective meningitis is considered. If the inflammatory process be slow, mild, and localised, involving the inner table of the skull, an external pachymeningitis may form, possibly with extradural abscess. This inflammation may extend to the inner aspect of the dura, and give rise to adhesive inflammation of the membranes, by which the disease is localised and general lepto-meningitis prevented. If, then, an increase of inflammation takes place, the membranes may soften and ulceration of the surface of the brain may occur, and the inner wall of the abscess may be formed by the degenerated brain substance. If, however, the inflammation reach the inner surface of the dura before the adhesions have formed, a diffuse lepto-meningitis is apt to result. Lepto-meningitis and cerebral abscess may form independently of a visible tract of inflammation spreading inwards from the original extra-cranial focus of irritation. In these cases the pathogenic cause has been conveyed by the vascular system, by thrombosed veins, by perivascular sheaths of arteries, by embolism of terminal arteries following thrombosis of larger trunks, or by sheaths of nerves.

In the author's cases careful bacteriological examinations have been made. Besides streptococcus pyogenes and staphylococcus pyogenes aureus, which are almost constantly present, staphylococcus pyogenes albus and citreus, bacillus pyogenes foetidus, bacillus pyocyaneus, diplococcus pneumoniae, bacillus meningitidis purulentæ, bacillus tuberculosis, and staphylococcus salivarius pyogenes have been found. It is pointed out that the absence of smell from the discharge from the ear is no guarantee that the most serious intra-cranial mischief may not result from it. Also that the chronic-

city of a discharge does not exclude the probability of future danger. The fact that lung pigment and oidium albicans have been found in the contents of brain abscesses, shows that there are ready paths for the entrance of micro-organisms into the cranial tissues.

Intra-cranial disease may result from punctured wounds reaching or penetrating the bone, compound fractures, infective injury to skull without fracture, infective necrosis of skull, and pathogenic affections of face and scalp, as erysipelas. But the majority of intra-cranial inflammations are generated in disease of the middle ear. In acute cases, when the mucous membrane and the bone are sound, extension to the brain rarely occurs, unless the inflammation is intense enough to cause venous thrombosis. It must not be overlooked that extensive purulent disease of the middle ear may exist with imperforate membrana tympani, and consequently no discharge from the external meatus. In chronic middle ear affections in children, in consequence of the imperfect union of the different parts of the temporal bone, the discharge may find its way outwards and give rise to subperiosteal mastoid abscess or acute periostitis of the mastoid and squamous bones, affections which, if suitably treated, usually do well.

When disease extends from the tympanum the bone usually becomes carious, either the roof of the tympanum or antrum, or the sigmoid groove. If abscess follow in the former case it will be in the temporo-sphenoidal lobe, if in the latter in the cerebellum. The perforation of the bone is followed by thickening of the dura mater, extra-dural abscess, ulceration of brain, or abscess of brain. Great caution is necessary in removal of granulation tissue or "polypi" from the middle ear; these frequently project through an opening into the skull, and so long as they remain intact form a natural barrier to the absorption of pathogenic products. On their removal the fresh wound becomes infected, and meningitis or abscess not uncommonly results.

Abscesses in the cerebrum or cerebellum sometimes empty themselves spontaneously through the openings in the bone, but in such cases the discharge is seldom free enough to admit of cure. Gruber describes a case in which the cerebral abscess emptied itself into the middle ear, which was previously healthy, and also a case where the abscess in the brain resulting from an otitis media persisted, while the disease in the middle ear got well. Such occurrences are very rare.

The abscess may burst into the ventricles or into the subdural or arachnoid spaces, giving rise to rapidly fatal lepto-meningitis. It may become encapsulated, when it may be absorbed or may slowly increase in size. Abscesses vary much in size, and the degree of pressure symptoms gives no index of the magnitude of the accumulation. Abscesses, except where pyæmic, are rarely multiple. Pyæmic abscesses result chiefly from disintegrating pneumonia, fœtid bronchitis and empyema, fœtid pericarditis, infective compound fractures, or more rarely from acute infective periostitis or ulceration of intestine.

When the abscess results from injury it is situated most frequently in the frontal or parietal lobes, when from otitis media it is found usually in the temporo-sphenoidal lobe or cerebellum. After healing of an abscess, if adhesion of the brain to the membranes has taken place, the patient may experience a momentary loss of consciousness on changing his position, owing to the drag on the brain. It seems seldom or never to be followed by epilepsy.

Sections on tuberculosis and carcinosis of the middle ear bring the second chapter to a close.

The third chapter on the symptoms of abscess of the brain and of meningitis is valuable, chiefly from the large number of carefully-recorded cases which it contains. The symptoms are divided into three stages—*initiatory*, such as rigors, pain, vomiting, fever, cessation of discharge from the ear; *second stage*, in which the pain becomes less, there is slow cerebration, want of attention, tendency to sleep, loss of muscular strength, apyrexia, slow pulse and respiration, optic neuritis, &c.; and *terminal stage*, with stupor and coma. An interesting account is given of the author's observations on cranial percussion as a diagnostic method. When the ventricles are distended the percussion note becomes clearer and more resonant, and the resonance is greatest at the most depending portion of the head. He believes that the method has value in diagnosis, and adduces cases in which it was employed with advantage. The value of localising symptoms in determining the seat of the abscess is fully discussed, and the differential diagnosis between encephalitis, abscess, lepto-meningitis, sinus thrombosis, and tumour is laid down. The prognosis of abscess depends on its "early detection, accurate localisation, and speedy and efficient evacuation under aseptic precautions."

The fourth chapter is on thrombosis of the sinuses. This may

be of two forms—marasmic, and infective or inflammatory. The differences between these are fully discussed, and are summed up in the following table :—

MARASMIC.	INFECTIVE.
1. Chiefly affects the azygos sinuses.	1. Chiefly affects the dual sinuses.
2. The clots tend to organisation or are absorbed.	2. Clots tend to purulent disintegration.
3. Hæmorrhages into cerebral cortex in about half the cases.	3. Hæmorrhages into brain or cerebellum seldom occur.
4. Tendency to produce brain softening.	4. No tendency to brain softening.
5. There is seldom purulent infection as a sequence.	5. Purulent infection common, septic or infective emboli.
6. No accompanying lepto-meningitis, cerebral or cerebellar abscess.	6. Often coincident purulent lepto-meningitis, cerebral or cerebellar abscess.

There are some symptoms which are common to all cases of infective thrombosis—as pain in head, vomiting, a high and fluctuating temperature, rapid pulse—remaining rapid under chloroform—rigors, followed by sweating, and digestive disturbance. According to the other symptoms the cases may be divided into pulmonary, when the involvement of the lungs is most marked; abdominal, which often resemble typhoid fever; and meningal. A very full account is given, illustrated by cases, of the symptoms of thrombosis of the special sinuses.

While in many cases the prognosis in marasmic thrombosis is not very unfavourable, that in infective thrombosis is always most serious, and the only hope lies in early operation, before the disintegrating process has advanced too far, and dissemination of infective matter throughout the body, or diffuse lepto-meningitis, has supervened.

The chapter which follows on treatment is naturally one of the most important in the book. It is apparent, and is now a matter of common knowledge, that the entire success in these and other operations depends on the most minute attention to detail. It would be impossible for us to do justice to the author's methods of operating in the space at our disposal, and it is the less necessary for us to attempt to do so, as there are few surgeons who will undertake these proceedings without having carefully studied for themselves this remarkable work. We pass on accordingly to the last chapter, which deals with the results of treatment.

The first cerebral abscess correctly diagnosticated from the

symptoms occurred in the author's practice in 1876. Here the operation was not permitted during life, but was performed *post-mortem*, confirming in all respects the diagnosis. The second case was in 1881; here Dr. Macewen operated when the patient was in *extremis*, much relief followed, although the patient died. The first successful case was that of Dr. Gowers and Mr. Barker in 1886. Since then numerous cases have been published.

The author records *fifty-four cases of ablation of the mastoid antrum and cells*, with removal of infective material from the middle ear. Of these, thirty-eight were cases of purulent otitis media, with extension limited to mastoid antrum and cells. All of these recovered. Sixteen were cases of purulent otitis media with extension in addition to the petrous bone and its recesses. Of these, five were cured, and eleven relieved, the discharge being greatly reduced, and a connective tissue barrier formed between the diseased area and the more vulnerable intra-cranial regions.

Twelve cases of infective purulent lepto-meningitis, of which six were operated on and recovered—five of these were of the cerebral fossa, and one of the cerebellar fossa.

Six cases of cerebro-spinal lepto-meningitis, five of which were operated on, with one recovery.

Twelve cases of recovery after operation for sigmoid sinus thrombosis. If cases of infective thrombosis entered under other heads were included, it would give twenty-eight operations, with eight deaths. The statistical table of infective intra-cranial lesions gives 94 cases, 74 operations, 63 recoveries, and 31 deaths. In all the fatal cases lung infection and systemic toxæmia were present before operation.

Twenty-five abscesses of the brain, of which nineteen were operated on and eighteen recovered, and five cases of extra-dural abscess without a death.

We think we were justified when we said that these results are a record of which the author and British surgery may well feel proud.

An Introduction to Human Physiology. By AUGUSTUS W. WALLER, M.D., F.R.S. Second Edition. London: Longmans, Green & Co. 1893. Pp. 632.

In noticing the first edition of this work we took occasion to say that we considered it the best English book on physiology for the

average medical student, and the rapid appearance of a second edition shows that the opinion we expressed has been shared in by a very large class of readers. The short time which has elapsed since the first issue makes it impossible that any very great alterations should be made in this edition, more particularly as Dr. Waller thinks, and thinks rightly, that "the gradually-formed deposit of accepted knowledge must be of greater intrinsic value than the latest 'discovery' or the newest theory." Nevertheless, the book shows everywhere marks of careful revision, and in looking through it we meet with many changes and additions which are in all cases improvements. The text is written in a pointed, epigrammatic style, calculated to fix the attention and impress the memory; the illustrations are numerous, and the diagrams are generally ingenious and instructive. The bibliography, although, of course, making no pretence to completeness (a complete bibliography would fill a larger volume than the whole book), is judicious, and amply sufficient for anyone who desires to study for himself the researches on which the science of modern physiology is based. We can again congratulate the author in the production of an admirable and useful book, of which we hope to see many new editions.

A Dissertation on Osteo-Arthritis. By W. H. RUSSELL FORSBROOK, M.D. Lond., M.R.C.S.; Consulting Surgeon to the Government of the Cape of Good Hope; formerly Surgical Registrar to Westminster Hospital. London: H. K. Lewis. 1893. 8vo. Pp. 132.

THIS interesting monograph on an important and—in the moist climate of these islands—too common an affection of the joints was originally prepared by the author as a thesis for the Degree of Doctor of Medicine of the University of London. In the introduction the author modestly apologises for the shortcomings of his work. There was really no necessity for disarming our criticism, at least in this way. The author may not have possessed the dismal advantage enjoyed by Mr. Robert Adams in the preparation of his valuable monograph—of being himself a martyr to the disease, and thus receiving at first hand unlimited and undiluted information on the subject of the symptoms and course of the disease which he undertook to describe, but he has given us an excellent and very readable summary of the present state of

our knowledge of the malady. As he tells us in the introduction—"I have profited by the labours of many of the writers on this affection, and, to the best of my belief, have consistently avowed the source and degree of my debt." We consider that he has selected his authorities admirably, and has given his readers every facility for comparing their opinions with his own, whether he agrees with or differs from them in his conclusions.

The literature of this disease is now a very considerable one—a fact to which curious testimony is borne by the list of "the most important synonyms" furnished in the introduction: Goutte asthénique primitive (Landré Beauvais); chronic rheumatism; digitorum nodi (Heberden); nodosity of joints (Haygarth); usure des cartilages articulaires (Cruveilhier); chronic rheumatism of the joints (Todd); rheumatic gout (Fuller); chronic rheumatic arthritis (Adams and Duckworth); rheumatoid arthritis (Garrod); osteo-arthritis (Spender); rhumatisme chronique primitif (Charcot and Vidal); rhumatisme noueux (Trousseau and Mathieu); arthritis deformans (Virchow and Senator); arthrite sèche (Deville and Broca).

The first chapter is historical. The author naturally expresses his surprise that "a condition so manifest in its fully-developed state should have remained so long undifferentiated;" the recognition of its existence "as an independent malady, as distinct from gout or rheumatism," not being yet quite a century old. Bones apparently presenting its characteristic pathological marks have been found in Lower Egypt by Mr. Flinders Petrie, having an approximate date of B.C. 1300. Other Egyptian bones presenting the same features, and derived from the Ptolemaic period, have been collected by Eve. Della Chiaje discovered corresponding features among some of the bones dug up from the ruins of Pompeii, and Lebert among those of the catacombs of Paris. We may mention in passing that some enthusiastic advocates of the ancient origin of venereal disease will have it that these bones are not really osteo-arthritis, but syphilitic. Sydenham described the disease as a modified form of rheumatism; Haller, John Hunter, and some others appear from their descriptions to have been acquainted with the anatomical features of the disease; but it was not till 1800 that it was differentiated with a fair degree of distinction by Landré Beauvais, under the name of "goutte asthénique primitive." Among the subsequent authorities who have dealt with the disease, the names of R. Adams and of R. W. Smith (both

of Dublin) stand out prominently for the value of their contributions to the clinical history and the morbid anatomy of "rheumatic gout."

Our author regards the disease as "a constitutional malady of a very peculiar nature; the effect it produces is neither that of ordinary inflammation alone, nor of malnutrition alone, but of both combined." He also considers that it is accompanied by evidences of *anæmia* and of a *lowered condition of the system*, and "that the subjects of it are rather below than above average health." He also believes in its heredity, and in its tendency to appear among the families of gouty, rheumatic, and *phthisical* parents. No age or position in life appears to be exempt. With regard to personal habits, "it is more likely to be developed by deprivation and unwholesome and unnutritious food. Prolonged exposure to cold and damp, overwork of mind and body, and prolonged grief and anxiety are among the most important immediate causes of its development."

Excellent summaries of the morbid anatomy and pathology of this affection are given in Chapters III. and IV. The writer believes that the greater tendency of women to attacks of the malady is explained by the regular periodic occurrence of the menstrual flow, which depurates the blood. The excess of uric acid, or its formative base, is thus washed away; and, accordingly, the phenomena of ordinary gout are less likely to display themselves.

The clinical history of the disease is illustrated by selected experiences of the author's own, as well as of the highest recognised authorities. A special chapter is devoted to the treatment of this essentially chronic and recurring ailment, and the volume closes with a specially selected series of "cases." We cordially recommend its perusal to all those who are interested in the pathology and treatment of a notoriously troublesome, and, usually, very intractable disease.

*Manual of the United States Hay Fever Association for 1893.
Containing a Report of the Annual and Adjourned Meetings of
1892, Scientific Essays, &c.*

"OUR lively neighbours," as the French used to be called, are wont to laugh at the English method of redressing grievances by getting up a "society," or an "association," or an "institute." With this example of the Western Continent before them, we shall not be

surprised to hear that a Society for the Prevention of Corns, or an Association for the Promotion of Alvine Action has been established by Englishmen. In this country we do not realise the amount of misery which hay fever causes in less favoured lands, and the "Nineteenth Annual Meeting of the United States Hay Fever Association, held on Tuesday, August 31, 1892, in the Methodist Episcopal Church, Bethlehem," may provoke an unsympathetic smile. In parts of the United States, however, the disease and the sufferings due to it are very real, and localities exempt from the scourge are eagerly sought for. Bethlehem, in New Hampshire, is one of these lands of Goshen. The causes of exemption are, as in the similar case of ordinary asthma, unknown, and will remain unknown until the exciting cause of the malady has been discovered. At the meeting one physician laid down that "hay fever is aggravated, and operates most severely where land is most highly cultivated," and that "a region protected from the south is most likely to be exempt. The planting of corn [*i.e.*, maize] and other pollen-bearing vegetables should be as far north of the street as possible, so that . . . the south winds would take it [*i.e.*, the pollen] down into the valley." That certain kinds of pollen, acting as mechanical irritants, are capable of inducing an attack was shown to be probable twenty years ago by Blockely, of Manchester, to whose experiments one of the speakers referred. For more than ten years these experiments were continued :—

"He experimented upon himself and others with various agencies to ascertain the origin of the malady. He decided against the efficiency of ozone, light, heat, dust, benzoic acid, coumarin, the odoriferous principle of hay, odours of various flowering plants—as violets, roses, &c.—and against various microscopic fungi. He then tested the effect of pollen of seventy-four kinds of plants and grasses. Within thirty minutes the rye caused coryza, occlusion of nostril, sneezing, lasting six and eight hours. . . . During the latter part of May but few pollen grains were found. About June 1 they began to increase, and his hay fever also. The variation in amount of pollen in the atmosphere corresponded with the degree of severity of attack."

The medical profession being powerless to relieve sufferers from hay fever, they took the matter into their own hands and founded the Association in 1873. We confess we do not see evidence of the "remarkable success" which has attended this "unique organisation." The following quotation from a Milwaukee newspaper seems to sum up the results of twenty years' labours :—

"This Hay Fever Association has found that no permanent cure has yet been effected; that the cures presented, whether medical or surgical, at the best are merely temporary, and that the only way of finding certain relief is to flee to some district free from the agencies that are so baneful. Where to go for relief is then the leading question for the victim, and this the Association solves for him. They investigate all advertised districts and publish their reports."

Syphilis; its Treatment by Intra-Muscular Injections of Soluble Mercurial Salts. By EDWARD COTTERELL, F.R.C.S. Eng.; Surgeon (Out-Patients) London Lock Hospital; Surgeon to the West End Hospital for Epilepsy and Diseases of the Nervous System; Surgeon to the Cancer Hospital, &c., &c. London: John Ball & Sons. 1893.

GOOD paper, clean type, and really beautiful binding make this booklet very attractive. When, however, we come to read it we find nothing to justify its production, unless the author wishes to issue it as an advertisement.

The Treatment of Constitutional Syphilis. By OSWALD ZIEMSEN, M.D., Knight of the Iron Cross, and of the Prussian Order of the Crown, Wiesbaden. London: H. K. Lewis. 1893. 8vo. Pp. 70.

THIS is an interesting and very pleasantly-written *brochure* on the symptoms and treatment of constitutional syphilis. The author places at the beginning of his introduction a motto which owes its authorship to Dr. Billings, and which conveys words of practical wisdom well worthy to be remembered by all future writers of scientific books and papers:—"The four rules for the preparation of an article for a journal will be, (1) have something to say, (2) say it, (3) stop as soon as you have said it, (4) give the paper a proper title." We confess to have commenced with very favourable prejudices a small volume opening with a sentiment so sensible and so well selected.

The author delayed the publication of his essay because he had hoped for high results from the announcement of Koch's discoveries. Like so many other earthly hopes—even of the scientific type—these were doomed to disappointment. He thinks—and we agree with him—that the treatment of this disease should not be

allowed to pass so largely into the hands of specialists, as it has of recent years tended to do. The author summarises the results of his personal experiences on page 9 : “ *The radical cure of constitutional syphilis is possible, but there is as yet no certain proof of this at our disposal, relapses having occurred even after many years.* ” He is a total disbeliever in local preventive treatment. “ My practical experience has led me to the conclusion that the notion of local preventive treatment is based on fallacious premises, and is not the outcome of practical experience.” “ . . . general, that is to say, specific, treatment should be adopted as early as possible ; delay is justified neither theoretically, as everyone will admit, nor practically, as my own experience has taught me.”

Dr. Ziemssen is a staunch advocate of the mercurial treatment of syphilis—the good old remedy of Basil Valentine and Paracelsus—by the studious depreciation of which so many unhappy sufferers from this disease have been allowed to pass through all the ravaging complications of a malady which is peculiarly protean in its manifestations. He considers inunction preferable to the other methods of administration, no gaseous products of the metal being in this way introduced into the system. He considers the climate and surroundings of Wiesbaden preferable to those of Aix-la-Chapelle as a centre for the treatment of syphilis ; and on all points of symptoms and practice he speaks with the confidence of one who has earnestly studied and thoroughly mastered the subject which he has undertaken to teach. We cordially recommend the perusal of this booklet to all medical practitioners.

Abnormal Man; being Essays on Education and Crime and Related Subjects, with Digests of Literature and a Bibliography. By ARTHUR MACDONALD, Specialist in the Bureau of Education. Washington : Government Printing Office. 1893. 8vo. Pp. 445.

SOME idea of the “ infinite capacity for taking pains ” which this volume represents may be formed from the fact that more than half of its 445 pages are occupied with the Bibliography of the subject. Besides the mere list of books, pamphlets, papers &c., dealing with “ education and crime and related subjects,” a chapter of 30 pages is devoted to digests of Italian, German, French, English and American works, sociological, ethical and “charitological”—an odious word; worse even than “sociological”! The final chapter is a Report of the Proceedings of the Twenty-

first Annual Congress of the National Prison Association of the United States, held at Baltimore, December, 1892.

From this brief summary it will be seen that this official publication condenses almost everything known or thought about the relations of education to crime, of alcoholism to crime, of heredity to crime, of criminal "suggestion," criminal responsibility, and the reform of the criminal. Chapter V., illustrating the connection between insanity and genius, may be read with interest even by those who are not concerned with the more serious and more practical problems involved; but we feel bound to protest against Oliver Goldsmith being included as an example. On the whole, no work in any language with which we are acquainted is so complete a repertory of information on crime, its causes and effects, as this volume, for which we are indebted to the industry of Mr. Arthur MacDonald and the liberality of the Government of the United States.

Healthy Hospitals: Observations on some points connected with Hospital Construction. By SIR DOUGLAS GALTON, late Royal Engineers, K.C.B., Hon. D.C.L., LL.D., F.R.S., Assoc. Inst. C.E., M.I.Mech.E., F.S.A., F.G.S., F.L.S., F.C.S., F.R.G.S., &c. Oxford: at the Clarendon Press. Sold by Henry Frowde, Oxford University Press Warehouse, Amen Corner, London; and by H. K. Lewis, 136 Gower-street, London, W.C. 1893. 8vo. Pp. 287.

WE greet with a hearty welcome this latest work from the pen of a veteran sanitarian and a master-mind in sanitary and military engineering. Probably no man living has had a wider practical experience than Sir Douglas Galton in the domain of hospital construction, and certainly no one enjoys a higher reputation than he does as a trained and successful director of public works and buildings.

Writing in a medical journal and for medical readers, we hold that a deep debt of gratitude is due to the author of this work, a layman, for the unvarying courtesy which characterises his allusions to our profession, for the deference which he pays to medical opinion, and for his vindication of the rights of hospital physicians and surgeons in the matter of hospital construction. The keynote is struck in the definition of a hospital at the beginning of Chapter

II.—“A hospital is not only a place for the reception and cure of the sick poor ; it has, so far as the community is concerned, another very important function. It is the technical school in which the medical student must learn his profession, and it is an experimental workshop in which the matured physician or surgeon carries on scientific research.” This is a broad, comprehensive, and rational definition. “It must be remembered,” adds Sir Douglas, “that in other professions the student can pursue his studies largely in his library, but for the medical student the patients are the books out of which he has to read at the bedside, and hence it is of essential importance to the community that every hospital should be available for study.” (Pages 9 and 10.)

In his preface the author avers that the object of his book is to place on record those principles which ought invariably to be followed in every good hospital, and to point out those conditions of construction which according to recent practice represent the minimum standard required to be followed in building a new hospital. If simplicity of design is the main object which the architect keeps in view in giving effect to these principles, the cost per bed of new hospitals would be much smaller than has been the case in many of those which have been recently constructed. It is pointed out how important this question is at the present time, when “the prosecution of sanitary measures and the development of sanitary progress, consequent upon the institution of County Councils over the country, render it probable that a large number of new hospitals for infectious cases and others may ere long have to be constructed.”

The book begins with a list of the principal works consulted in its compilation, and this list will show how wide has been the research, how painstaking the labour of the author of “*Healthy Hospitals.*” Twenty chapters follow, and a concise index concludes the volume.

In the first chapter a very instructive historical survey of hospitals is followed by some sensible remarks on the extent of hospital accommodation required in proportion to the population. It is new to us that great public hospitals were established in India under the auspices of the Buddhist religion, which overspread that vast country 400 years before the Christian era. It is, however, certain that hospitals are essentially of Christian origin in Europe and in most parts of the civilised world.

That Sir Douglas Galton’s teaching is in strict accordance

with modern medical opinion is clear from his statements as to the amount of hospital accommodation needed for infectious diseases, and as to the management of cases of cholera and enteric fever. He endorses the opinion expressed by recent authorities that accommodation for infectious diseases should be provided in the proportion of ten beds per 10,000 of population, with arrangements framed to admit of three different infections in both sexes. He truly insists that the act of removal to hospital is attended with fatigue, which in cholera appears to (*does*) reduce the probabilities of recovery. "*In such cases,*" he observes, "*it might be preferable to leave the patient in his own home, and to make provision elsewhere for the healthy occupants of the house.*" He might have added that the Public Health Code of each division of the United Kingdom distinctly authorises the provision of such refuges.

In providing hospital accommodation, Sir Douglas says that it may be desirable to keep in separate classes—(1) Contagious and infectious diseases, possibly including phthisis; (2) the ordinary sick; (3) the injured or wounded; (4) the aged sick poor; (5) lunatics and the imbecile; (6) pregnant women, who are not suffering from disease in the ordinary sense; (7) convalescents. He reminds us that the "lazar" or "pest-house," or—as we would say—the infectious or contagious hospital, was at one time a necessary adjunct to every small community. It is only now, he truly observes, that we are awakening to the necessity of again making such establishments an appendage of every Sanitary Authority, and, unlike the case of General Hospitals, charging the cost of their construction and maintenance to the rates.

In order to facilitate the permanence of healthy conditions in a hospital, it is shown that the form of the building should be such as to ensure the provision and proper application of—(1) Fresh air, with the necessary warmth and coolness; (2) ample light, including the penetration of sunshine to every part; (3) purification of walls and floors; (4) means of personal cleanliness; (5) adequate bed and bedding maintained absolutely clean, and adequately prepared food and drink; (6) attendance. "Cleanliness and fresh air do not so much give life as they are life itself to the patient. Cleanliness—clean air, clean water, clean surroundings—and a fresh atmosphere everywhere are the true safe-guards against infection; segregation by ample floor and cubic space, ample ramparts of fresh atmosphere, rather than segregation by walls and divisions. You cannot lock-in or lock-out the infectious

poison. You can air it out, diffuse it, and clean it away." (P. 15.)

Before discussing the shape of the wards, which he does in Chapter XIII., Sir Douglas considers the question of site (in Chapter III.), the conditions which vitiate the air in an occupied room (Chapter IV.), the quantity of fresh air required to mitigate these conditions (Chapter V.), the purification of air (Chapter VI.), the movement of air by natural means, and by artificial appliances (Chapter VII.), the conditions which regulate the warming of air (Chapters VIII., IX., and X.), and lighting (Chapter XI.). In Chapter XII. some of the methods by which the principles which govern the movement and the warming of air have been applied in hospitals are described in detail.

In the chapter (XI.) on "Lighting," the author observes that gas, in hospitals especially, is not safe without the use of some form of regulator in order to equalise the pressure. He says that the electric incandescent light, formed by a thread of carbon rendered incandescent by means of an electric current, and contained in a closed vessel, can in no way vitiate the air of a room, and is in fact the most hygienic form of light which can be imagined. The arc electric light may be injurious to health in an occupied space, because of the nitric acid developed. At the same time, arguing from its beneficial effects on vegetation, he suggests that this light may exert curative influences on sick persons. We have long been of opinion that anaemia of the winter season would become much less frequent if only the electric light was extensively employed in large places of business and public offices where women are employed. The only drawback to the use of the electric light in the wards is that it cannot be modified or turned low as a gaslight can. Each incandescent lamp, therefore, should be fitted with a movable shade.

Sir Douglas appears to recognise only one system of hospital construction—and that is the pavilion system. In this we thoroughly agree with him. Too often has the corridor system proved a costly failure. It is absolutely unsuited for the reception and treatment of infectious cases, and it has the additional grave drawback that fresh air and sunlight can enter it at one side only. "The ward with its necessary adjuncts," writes the author, "is the central unit of hospital construction; the form of the ward will govern the features of a hospital. The first principle upon which the pavilion system is based is to limit the number of patients under one roof.

The second is to afford to those patients abundance of fresh air by means of cross ventilation. The third is to ensure that sunshine shall penetrate as large a portion of the building as possible—both inside and outside." . . . "The accepted doctrine of late years has been that the number of from 100 to 120 patients under one roof should not be exceeded. But this is certainly larger than is desirable in surgical and fever cases." . . . "The zone of aeration round any hospital should not be less than twice the height of the surrounding buildings, so as to allow sunshine to fall as fully as possible on the walls and surrounding grounds."

We have made the foregoing quotations, because they embody the principles of hospital construction adopted by Sir Douglas Galton. These principles are, in our judgment, based upon common sense, as well as upon scientific knowledge of medicine, architecture, and sanitary engineering alike; and it is this fact which enhances the value of the work before us.

One of the most useful chapters in the book is the eighteenth, which includes observations on points connected with hospitals for incurables, children's hospitals, convalescent homes, and infectious hospitals. Chapter XIX. is devoted to lying-in institutions, in which the greatly diminished mortality observed in recent years is, with diffidence, but no doubt rightly, attributed by the author to the greater isolation and separation of the cases. "However great," he says, "is the necessity for ventilation, freedom from contamination of air, and absolute cleanliness in the medical and surgical wards of a general hospital, it may be safely asserted that these necessities are tenfold greater in the wards of a lying-in institution." (P. 265.)

Every delivery bed should stand in a superficial area of not less than 200 square feet, and a cubic space of not less than 2,400 cubic feet. Every lying-in bed, even where the delivery ward is, *as it ought always to be*, separate, should have a space of 2,300 cubic feet in a single-bed ward, and 1,900 cubic feet in a four-bed ward. A lying-in bed must never be placed in an angle of the ward. It may be said that the danger to life in a lying-in hospital increases in a geometrical ratio with the number of in-cases.

Sir Douglas Galton is nowhere more happy than when he speaks of children in hospital. He remarks:—

"A hospital for children in a town is not advisable. It can only be looked on as an adjunct to an out-patient department.

“ Children, as a rule, are better cared for in their own homes than in a hospital, but in cases of accidents and acute diseases they may require special care and treatment which their homes would not afford; such are appropriate cases for a town hospital. There is the additional consideration that the hospital provides means of affording clinical instruction to medical men.

“ With regard to the question of providing hospitals in towns solely for children, it is of universal hospital experience that the intermingling of ages is desirable.

“ Sick children can never be left alone for a moment. It might almost be said a nurse is required for every child.

“ This is why in a general hospital it is much better for the children to be mixed as far as possible with the adults, and if judiciously distributed it does the woman in the next bed as much good as it does the child, or the man as it does the little boy.

“ If there must be a children’s ward in a general hospital, let it be for the infants.

“ If there is a separate children’s hospital the age of admission on the female side would preferably include 15 years.

“ A child’s ward-nurse ought to feel for each child as if her happiness were bound up in its recovery.”

Surely these are sound common-sense views on a vexed question. They commend themselves as such to all who have the best interests of sick children at heart.

We have not attempted to criticise this work on hospital construction. So far as our own knowledge and observation go we are ready to endorse the author’s conclusions. For the rest, we are content to sit at the feet of a teacher like Sir Douglas Galton, whose many-sided attainments, ripe experience, and scientific standing, entitle his pronouncements to be listened to with respect and accepted without demur.

Sciatica; a Record of Clinical Observations on the Causes, Nature, and Treatment of Sixty-eight Cases. By A. SYMONS ECCLES, M.B. London : Macmillan. 1893. Pp. 88.

In this little book a great deal of useful information is contained concerning a most troublesome and distressing disease. Of the sixty-five cases examined fifty seemed due to exposure to cold or damp, fourteen to constipation, and one to cancer of the rectum. Of the predisposing causes gout, rheumatism, anaemia,

over-fatigue, and undue indulgence in alcoholic stimulants appear to be the most common. Forty-one cases occurred in females, twenty-four in males.

While the term sciatica is used to designate painful conditions arising in the distribution of the sciatic nerve, whether accompanied by the distinct symptoms of inflammation of the nerve-trunk or not, a chapter is devoted to the diagnosis between neuralgia, perineuritis and neuritis, and the differential characters are summed up in a short and useful table.

The greater part of the work is devoted to treatment. In this there is not much that is new in principle, but the minute directions given as to detail will doubtless be found most helpful to those who are called on to treat this often obstinate and painful affection.

Sanitary Work in the Smaller Towns and Villages. By CHARLES SLAGG, Assoc. M.I.C.E. Third edition, enlarged. London : Crosby, Lockwood & Son. 1893. Pp. 270.

THIS edition is practically a reprint of the second, some notices of recent Acts being the only additions. The death of the author in the beginning of the year prevented any thorough revision being carried out, but the work is so clear and accurate that we feel the publishers acted wisely in republishing it as it stood rather than let anyone else overhaul it. It is a thoroughly reliable hand-book, and has a capital index.

Bulletin of the Harvard Medical Alumni Association. No. 5. Boston : Published by the Association. 1893. Pp. 89.

THIS number contains the names of the officers and the laws of the constitution of the Association, a report of the third annual business meeting and of the third dinner, a list of deaths of members, and an extract from the report of the Dean of the Medical School.

In Harvard a change has recently been made similar to that which we are now going through in this country—namely, an extension of the period of study, which has been extended from three years to four. This change was made with much apprehension, as it was feared that it would reduce the number of students very largely ; but such has not been the case—on the contrary, the

numbers have been larger this year than ever before. This is remarkable, since changes which were made in 1870-71, by which the course was extended to three years, diminished the class of that time by 40 per cent. It would appear that now the students recognise that changes of this kind are made for their good, and not merely to lay more and more vexatious burdens on their already overloaded shoulders. Let us hope that our experience of the five years' curriculum will be as fortunate as that of the great American School.

We would congratulate the Harvard Medical Alumni Association on the flourishing condition of their School and of their organisation, and wish them long years of increased prosperity.

The Essentials of Chemical Physiology for the use of Students.

By W. D. HALLIBURTON, M.D., F.R.S. London : Longmans, Green & Co. 1893. Pp. 166.

THE great importance of chemistry in medicine is becoming every day more and more recognised, and the lamentable ignorance of this subject so often manifested by students is calling each day for remedy. The work before us will, we believe, greatly help in bringing about a better state of things.

It is apparently modelled on the plan of Professor Schäfer's *Essentials of Histology*. At the beginning of each chapter the practical operations are detailed (in both books often too little detailed), and then follows a discussion of the facts shown by the experiments.

The book is divided into two parts—one elementary, to be gone through by all students ; the second more advanced, and intended for those students only who are candidates for higher degrees.

In the elementary course we find chapters on the Carbo-hydrates and Fats ; Proteids ; Albuminates and Albuminoids ; Milk, Flour, Bread ; Saliva ; Peptic digestion ; Pancreatic digestion ; Bile ; Blood ; and Urine. A very useful and well-arranged scheme is appended for the detection of physiological proximate principles.

In the advanced course the same order is adopted, but the exercises are somewhat more difficult and recondite.

In an appendix many instruments are described, with directions for their employment—such as the hæmatocytometer, the hæmoglobinometer, the polariscope, the mercurial air-pump—and directions are given for taking the specific gravity of the blood, analysis of

gases, Kjeldahl's method of estimating nitrogen, and the micro-chemical detection of phosphorus, iron, and glycogen. The text is freely illustrated with good engravings.

Professor Halliburton's reputation as a physiological chemist is so well established, and his long experience as a teacher is so well known, that it is unnecessary to say that the information with which this book abounds is accurate and clearly given. The work is one which meets a distinct want, and we have no doubt that it will receive the hearty welcome its merits from both teachers and students.

Guy's Hospital Reports. Vol. XLIX. (Vol. XXXIV. of Third Series). London: J. & A. Churchill. 1893. Pp. 505.

THE volume opens with a biographical sketch, by W. H. A. Jacobson, M.Ch., of John Hilton, F.R.S., who died fifteen years ago. It is intensely interesting, and brings the strong, brusque man plainly before the reader. The extracts from his lectures are well chosen, and show the power of reasoning which has made "Rest and Pain" a classic. There is also a biographical sketch of Hilton's colleague, Edward Cock, F.R.C.S., who died last year, aged eighty-seven, by R. C. Lucas, F.R.C.S., which sheds much light on the history of Guy's for a period of over fifty years. There are nine other papers in the volume, all of which are of interest. "Glycosuria and Surgery," by G. Bellingham Smith and Herbert E. Durham, fills some 100 pages, and contains, amongst other things, several cases of *mal perforans*. The "Accidents of Anæsthesia," by George Rowell, is a good summary of recent theories.

The Clinical Use of Prisms, and the Decentering of Lenses. By ERNEST E. MADDOX, M.D. Second Edition. 1893.

WE are glad to see that this book has reached its second edition. A considerable amount of new material has been added—some 50 pages—consisting partly of a fuller study of convergence, and partly of a number of optical problems. The work is a valuable one, affording information on subjects that are somewhat neglected in the ordinary text-books, but it is probably still more useful to the optician who has to make the glasses than to the oculist who prescribes them. The most interesting portion of the book to the

ophthalmic surgeon is that dealing with the function of convergence, wherein Dr. Maddox shows himself a follower of Hansen Grut, whose views are known to the ophthalmologists of the United Kingdom from his Bowman Lecture delivered before the Ophthalmological Society in Nov., 1889. We observe that the statement in the first edition, to the effect that latent convergence is the prevalent condition in distant vision, has now been corrected, and Dr. Maddox, as most other observers, accepts the view that divergence is the anatomical position of the eyeballs. The most practically useful portion of the work is that which treats of the decentering of lenses. It affords the ophthalmic surgeon valuable knowledge which is not so easily obtainable elsewhere—e.g., the table on page 76 gives the amount of prismatic deviation produced by decentering any lens from 0·5 D. to 20 D. to any extent from 1 mm. to 30. This enables anyone at a glance to ascertain the precise prismatic effect produced by decentering any of the glasses to any given extent. The chapters on the clinical application of prisms in diagnosis, and the use of prisms in treatment, are well worth study.

Enteric Fever in the Tees Valley. Twenty-first Annual Report of the Local Government Board, 1891–92. Supplement in continuation of the Report of the Medical Officer for 1891. London: Eyre and Spottiswood. 1893. Folio. Pp. 150.

If there still exists any disbeliever in the waterborne origin of enteric fever, surely this remarkable Report will dispel his doubt, once and for ever. A more conclusive document never was penned than Dr. Fred. M. Barry's Report to the Local Government Board (England) on the epidemic prevalence of enteric fever during 1890–91 in certain sanitary districts situate in the valley of the River Tees in South Durham and North Yorkshire.

Two series of outbreaks of fever occurred in the sanitary districts in question—the one in September and October, 1890, the other in January, 1891. As to the first of these, Dr. Barry made an Interim Report, which was already passing through the press, when the second outburst took place. In each instance the epidemic lasted six weeks—namely, from September 7 to October 18, 1890, and from December 28, 1890, to February 7, 1891.

Both outbreaks are dealt with in the Report before us—the statistical evidence bearing upon each being based on the detailed

results of the Census of 1891. Dr. Barry waited for these results—hence the delay which has occurred in the presentation of his Report.

The Report itself is too voluminous to transfer to these pages, but its perusal will reward any one who reads it through. It is drawn up with singular ability, is couched in clear language, and is illustrated by numerous diagrams, maps, and lithographs.

Prefixed to the Report is an "Introduction" by the able Medical Officer of the Local Government Board, Dr. R. Thorne Thorne, F.R.S., and from it we cull the following facts:—

The outbreaks of fever took place in ten Registration Districts lying immediately to the north and to the south of the River Tees, and having altogether a population of 503,616 (1891). These 10 districts form part of a large area in Northumberland, Durham, and Yorkshire, in the greater part of which, according to the Registrar-General, enteric fever has been unduly prevalent during recent years. By the aid of returns made under the Infectious Disease (Notification) Act, 1889, supplemented by special returns from Medical Officers of Health and from Medical Practitioners, where the provisions of that Act were not in operation, it transpired that 1,463 cases of enteric fever occurred in these 10 Registration Districts in the two six weeks' periods referred to, and that of these 1,463 cases 1,334, or 91 per cent., occurred in three Registration Districts—namely, those of Darlington, Stockton, and Middlesbrough.

The 10 Registration Districts referred to contain 32 Sanitary Districts, to 10 of which the excess of attack rate was found to be limited. Further, 9 of the 10 infected districts were amongst the 11 Sanitary Districts comprised within the Registration Districts of the three towns named above.

Out of the 1,463 attacks of enteric fever in the two special periods, 1,352, or 92 per cent., occurred in the 10 sanitary districts referred to. It is noteworthy that, whether judged by attack or by death, the outburst of the fever was most conspicuous as regards the second of the two epidemic periods, December 28, 1890, to February 7, 1891—a period in which, as Dr. Barry points out, enteric fever is unapt to be epidemic in this country. Of the 10 sanitary districts especially involved eight were urban—namely, Darlington, Stockton-on-Tees, Middlesbrough, South Stockton, Ormesby, Normanby, Eston, and Kirkleatham. Two only were rural—namely, Darlington and Stockton. In the urban districts,

the fever was generally distributed; in the rural districts, it was limited to particular localities only.

Having ascertained that the special incidence of the fever during the two six weeks' periods was upon these 10 sanitary districts, Dr. Barry made a careful inquiry into the general sanitary circumstances of these districts, dealing especially with the questions of house accommodation, excrement and refuse disposal, sewerage and drainage, and milk distribution. No community of any such sanitary circumstance could be found to affect the several areas invaded by the fever. Not only so, but amongst localities where precisely similar faults did prevail, some places suffered severely, whilst others enjoyed almost complete immunity from fever.

The result was, however, quite different when the question of water supply came to be considered. It was found that every one of the ten sanitary districts invaded by the fever were supplied with water pumped from the River Tees and filtered through sand. In fact, out of a total of 93,974 inhabited houses (having in 1891 an enumerated population of 503,616 persons) in the thirty-two sanitary districts included within the ten Registration Districts forming the area of inquiry, 39,566 (with an estimated population of 219,435 persons) were supplied with Tees water, and of this number all but 447 houses (with an estimated population of 2,072 persons) were within the ten sanitary districts which were found to have suffered from excess of fever in the two epidemic periods. The estimated population receiving their water supply from the Tees amounted to 219,435, whereas the estimated population receiving their water supply from other sources than the Tees reached 284,181. Calculating the attack-rates upon these figures, it was found that the rate of attack from enteric fever per 10,000 living during the first six-weeks' epidemic had been 33 amongst persons supplied with the Tees water, and 3 amongst persons supplied with other water; whereas in the second six weeks' epidemic the rates were 28 and 1 respectively. Taking the two periods together, the remarkable result comes out that for every single person who contracted enteric fever amongst the population not using the Tees water, 15 persons contracted the disease amongst those who were supplied from the river.

The explanation of this striking incidence of enteric fever among the drinkers of the Tees water throws a lurid light on nineteenth-century civilisation. Dr. Barry found that, within the

catchment basin of the Tees, above the intakes of the two water companies, the river receives "either directly or indirectly the drainage of some 20 villages and hamlets as well as that of the town of Barnard Castle," with its population of 4,341 (1891); besides washings of land heavily manured, at times with night soil, together with the drainage of graveyards and farmhouses. "At Barnard Castle," says Dr. Thorne Thorne, "almost everything has been so contrived as to ensure, to the fullest, the fouling of the river by every conceivable form of filth." Reference to the plates embodied in the Report will show how public and private drains discharge upon the banks of the stream, whilst privies, urinals, and water-closets deliver their contents on to the fore-shore. A common arrangement is to carry all liquid filth to openings made at different heights in the house-walls, or in retaining walls, in order to discharge along the river-side. Very large quantities of all sorts of rubbish are also customarily deposited on the banks of this long-suffering watercourse—ashes, house-refuse, building material, midden refuse, refuse from gasworks, &c. At the time of Dr. Barry's visit these masses "of stinking abominations" lay bare, exposed to the view of all, along the river banks, awaiting the floods which periodically serve to wash the accumulated filth and refuse down stream as far as, and then beyond, the intakes of the two public water services. It is almost incredible, but nevertheless true, that so far back as 1875 the present manager of the Stockton and Middlesbrough Water Board, then a member of the Middlesbrough Corporation, gave evidence before a Parliamentary Committee to the effect that the Tees was, at the point now in question, "an improper service" of water supply "from the pollutions that go into the river."

A series of bacteriological examinations of the Tees water, made during the year 1887, showed that "in flooded states of the river there is evidence of profound sewage contamination within the Darlington area," which "persists in the water of the Tees at the pumping station for the Darlington town-supply.

Commenting on the evidence adduced by Dr. Barry, Dr. Thorne Thorne observes that it can hardly be contended that filth of such a character, in such abundance, and from such sources, should remain for any length of time free from the specific material of enteric fever. Something more, however, than the mere casual pollution of the river water by the particulate poison of this disease, which must be an ever recurring risk, seems needed, in order

to explain the two exceptional outbreaks with which Dr. Barry deals. "Floods," says Dr. Thorne Thorne, "occurring at the right moment, and carrying large masses of the filth with rapidity down the stream, up to, and past, the water intakes would, however, supply a reasonable explanation of the exceptional outbursts of the disease over the area supplied with the Tees water."

As a matter of fact, this is precisely what did happen. In the fortnight ending August 23, 1890, no less than 3·660 inches of rain were registered at Barnard Castle, and the river was reported by the Inspector of the Tees Salmon Fishery Board as "much flooded" on August 13, and "very much flooded" on August 23. On September 7 the first six weeks' epidemic set in.

In just the same way the second six weeks' epidemic period, which commenced on December 28, was preceded by flood in the Tees—namely, by an eight-foot flood in the beginning of December, due to melting of snow which had fallen in great abundance towards the end of November.

Surely the case is clearly proven, and well does Dr. Thorne Thorne, in closing his introductory remarks, observe—"Seldom, if ever, has a case of the fouling of water intended for human consumption, so gross or so persistently maintained, come within the cognisance of the Medical Department, and seldom, if ever, has the proof of the relation of the use of water so befouled to wholesale occurrence of enteric fever been more obvious and patent."

A Practical Text-book of the Diseases of Women. By ARTHUR H. N. LEWERS, M.D. Lond., M.R.C.P. Lond.; Obstetric Physician to the London Hospital. Fourth Edition. With 144 illustrations. London: H. K. Lewis. 1893.

THE fact that this convenient and eminently practical text-book has reached a fourth edition within a moderate period of time is, in itself, good evidence in favour of the value of its existence. As a comparatively short time has elapsed since the issue of the third edition, the author has not considered it necessary to make many changes in the text. One of considerable importance—and to which, accordingly, the reader's attention is called in the preface—is in connection with the operation for dilatation of the cervix. "Rapid dilatation is now recommended only for those cases in which dilatation is undertaken soon after a confinement or miscarriage, or where it is required during pregnancy on account,

of some pathological state of the ovum, such as, for example, hydatidiform mole. In other cases requiring dilatation to an extent necessary to admit the finger I prefer to use specially-prepared laminaria tents. If the dilatation so obtained is not quite sufficient, a few sizes of Hegar's dilators can be used to complete it."

The author has also been able to give a fuller report of the results of supra-vaginal amputation of the cervix uteri for cancer. He is able to state, with well-grounded satisfaction—"I have now had twenty-two cases of this operation without a death." He has also been enabled by his own experience to make some progress in the choice of operation for cases of cancer of the cervix. "For cancer *beginning in the vaginal portion* there can be no doubt that the supra-vaginal amputation of the cervix is the right treatment. For cancer *beginning in the cervix above the vaginal portion*, it seems probable that, if the case is seen early enough, vaginal hysterectomy ought to be preferred. For primary cancer of the body there is, of course, only total extirpation." The author has found from his own results that total extirpation is more dangerous than supra-vaginal amputation of the cervix.

It is hardly necessary to examine in detail any parts of the book which have already been before the professional public in a former edition, and which has obtained the most substantial evidence of their favourable opinion. We will only express the hope that this very clearly-written and well-illustrated manual will continue to enjoy the popularity with which it has hitherto been received, and which, in our opinion, it thoroughly deserves.

Outlines of the Diseases of Women. By JOHN PHILLIPS, M.A., M.D. Cantab., F.R.C.P.; Assistant Obstetric Physician to King's College Hospital; Physician to In-patients at the British Lying-in-Hospital; Examiner in Midwifery to the University of Glasgow. With 120 Illustrations. London: Charles Griffin & Co., Limited. 1893.

We heartily congratulate Dr. Phillips on his hand-book on diseases of women. We have seldom seen so excellent a text-book—clear and brief. The student and junior practitioner will find it a good and intelligible guide, useful both for examination and for the treatment of the minor troubles and the performance of the minor operations of gynaecology.

The author has given many useful prescriptions, which we are glad to see placed in the letterpress, and not relegated to a back page. They cannot but be of great service to young men beginning practice, who, as a rule, are proverbially hampered when called upon to write prescriptions for other than the more common ailments. Illustrations, printing, paper, and binding are all good.

On Snake-poison: its Action and its Antidote. By A. MUELLER, M.D. Sydney: L. Bruck. 1893. Pp. 85.

THIS is a well written and well printed monograph on an extremely interesting subject, by one who has evidently devoted himself to its study with the zeal of an enthusiast. It has been professedly written for the instruction of the general public as well as for the medical profession; and, taking into account the very important fact that snake-bites usually occur where doctors are least accessible, we cannot help sympathising with the author in addressing himself, not merely to the skilled practitioner of medicine, but freely to all members of the general community whom the accident of snake-bite may concern.

Soon after beginning his Australian career, Dr. Mueller received his own first personal experience on this serious subject from an active specimen of the tiger snake of that country. Having recovered after a narrow escape with life, his interests were very naturally strongly excited in the direction of investigating the nature of the snake-poison, and a full elucidation of the phenomena which supervene upon its introduction into the human body. His personal feelings led him to believe that these were all due to a depressing or paralysing action on the central nervous system, and not to its effects as a general protoplasmic poison, as most were inclined to believe. Acting upon this belief, Dr. Mueller introduced the treatment of hypodermic or intravenous injection of strychnin, and his powerful advocacy of this remedy induced other Australian practitioners to give it a trial. Dr. R. P. Banujie—an Indian practitioner—also adopted it. The combined results are collected in the booklet before us, which gives an abstract of the course of fifty Australian and eight Indian cases of snake-bite, in all of which the use of strychnin was followed by recovery.

The writer published his theory of the action of snake-poison in May, 1888, after having practised the strychnin treatment for some years and thoroughly satisfied himself of its efficacy. In the

latter part of 1888, accounts of Feoktistow's researches reached this country. His final conclusions, to the effect that snake-poison is solely a nerve poison, that it does not destroy protoplasm, and has no effect whatever on the blood to which its destructive potency on animal life can be ascribed, were in complete harmony with the writer's views—in fact, a re-statement of his theory. It was a strange coincidence, or whatever it may be called, that, "independent of each other, at almost opposite parts of the globe, and by opposite methods, we had arrived at almost identical conclusions." Those of Feoktistow were drawn from 400 elaborate experiments on animals, both vertebrates and invertebrates, made in the laboratory of Professor Kobert at the University of Dorpat, and in that of Professor Owsjannikow at the Imperial Academy of Sciences of St. Petersburg. The writer's conclusions, on the other hand, resulted entirely from a careful and happy analysis of the symptoms observed at the bedside of his patients suffering from snake-bite. The conclusions drawn from the two series of experiments did not, however, coincide. Dr. Mueller's patients recovered, Feoktistow's animals died. Accordingly, the latter "concluded his researches with the confession that a physiological antidote for snake-poison cannot even be thought of at the present state of science." But our author judicially indicates the missing link in Feoktistow's reasoning—"Falling into the errors of his predecessors, mistaking the functional analogy that exists between the nerve-centres of the lower animals and that of man for absolute identity, which does not exist, especially not when they are under the influence of the two poisons. . . ." This source of error should be oftener borne in mind by the experimental physiologist than it appears to be; if it were, the practice of vivisection would give better results.

In using this remedy heroic doses of the strychnin must be administered from the first—up to 20 or 25 minims of the liquor strychninæ—repeated at intervals of 15 or 20 minutes. The author is confident of the result when the treatment is begun in time. "Strychnine is the exact antithesis to snake-poison in its action." "Purely physiological in its action, it neutralises the effects of the snake-poison, and announces, by unmistakable symptoms, when it has accomplished this task, and would, if continued, become a poison itself." "The few failures among its numerous successes recorded during the last few years in Australia were nearly all traceable to the antidote not having been injected in sufficient quantity." Dr. Mueller has evidently an unlimited

degree of confidence in the value of his antidote. The subject certainly deserves all the attention which it can receive from the scientist and the practitioner. It would surely be one of the greatest triumphs of modern medicine if a thoroughly reliable antidote were obtained for the hitherto unconquerable snake-venom, and we will anxiously pray that Dr. Mueller's results may receive further confirmation.

A Medical Handbook; for the use of Practitioners and Students.
By R. S. AITCHISON, M.B., C.M., F.R.C.P.E. London: Charles Griffin & Co. (Limited). 1893. Pp. 347.

IN a small, well-printed and nicely-bound volume, which is not too large for the pocket, the author has produced a modern work on the lines of the well-known handbook of Hartshorn, which in past years ran through so many editions. The arrangement is clinical, and the author's object has been to put in a small compass the chief points of importance, so that his book may serve as an useful *aide mmoire*, not only to students, but to practitioners in their daily work. Such a book does not need detailed criticism; it is a compilation not original, and must be judged accordingly. As a rule, the information is well and clearly given, and differential diagnosis may be helped by it, but it will not take the place of the standard works on practice of medicine.

Charles Letts & Co.'s A. B. C. Medical Diary and Visiting List.
1894. London: Charles Letts & Co., and Burroughs, Wellcome, & Co.

THE 1894 edition of this diary will compare very favourably with any of its predecessors, either as to the usefulness of its features or as to the accuracy of the information conveyed in the "Excerpta Therapeutica," which, this year, comprises nearly 200 pages of carefully selected memoranda. It is, as heretofore, of a handy size for the pocket, and may be had for 56 or 112 patients daily, according to requirements.

PART III. SPECIAL REPORTS.

REPORT ON NERVOUS AND MENTAL DISEASE.*

By RINGROSE ATKINS, M.A., M.D.; Resident Medical Superintendent, District Asylum, Waterford.

I. INSANITY IN GENERAL.

The Insanity of Negation.—At the Third Annual Congress of French Alienists, held at Blois, a discussion took place on an interesting form of mental disease originally described systematically a few years previously by the late Dr. Cotard under the term “Insanity of Negation.” Cotard recognised a peculiar disposition on the part of a certain class of patients, which, in virtue of their primary delusive conceptions, lead them to continually deny everything—to be, as it has been proposed to designate them, *essentially deniers*. The insane of this class are ordinarily patients suffering from the anxious form of melancholia. The syndrome of their disorder usually justifies the title of “deniers” that has been given them. There is in them a predominating tendency to anxiety, worry, and imaginary terrors. They have the feeling of culpability of perdition, of damnation; they accuse themselves of all imaginable crimes; they are, they say, incapable, unworthy; they are the curse and disgrace of their families; they are going to be arrested and condemned to death, to be burned or cut in pieces, and if this occurs it will only be justice, since they have deserved it for their crimes. They refuse all consolation; they reject all proofs brought forward of their innocence: the clearest demonstrations, the most authoritative affirmations, the most affectionate testimonials are received by them with incredulity or sarcasm. It is in this way they first manifest their negative tendency. There

* The author of this Report, desirous that no contribution to the subject of Nervous and Mental Disease should remain unnoticed, will be glad to receive any publications which treat of it. If sent to the correspondents of the Journal they will be forwarded.

are some melancholics in whom this disposition is more marked than in others. If asked their name, they say they have none; they make the same reply as regards their age and their family relations; they have neither father nor mother. If asked if they feel pain in the head, abdomen, or any part of their bodies, they reply that they have no heads or stomachs, and go even so far as to deny all bodily existence. With them negation is universal, nothing exists, they themselves are nothing. As a consequence of their ideas they resist everything that is required of them: it is only by great effort that they can be made to change their garments or underclothing, they do not want to be put to bed, or to get up; they are continually in opposition. To these tendencies they add sometimes mutism, refusal of food, and some of them have a singular disposition to hold back their urine or excretions, or they imagine they have not satisfied their natural wants for months or years. I had an interesting and well-marked case of this peculiar form of melancholia recently under observation. The subject was an elderly man, who did not break down mentally until late in life. He at first became morose and sullen, and then silent and depressed. His first delusive conception had reference to his own personal condition. He affirmed—and nothing would persuade him to the contrary—that his bowels never acted, and he lamented most bitterly over this terrible state of things, though in point of fact his intestinal action was quite regular and natural. He next denied the existence of any food, and though taking his meals as usual persisted in stating that he ate nothing, and that there was no such thing as food. This condition of negation went on until he denied the existence of beds and furniture around him, and finally he positively denied his own existence, asserting that he himself and all those associated with him were merely ideas, and that there was no such thing as existence at all. He often loudly complained of this state of things, but through it all the one thing which caused him the greatest personal distress was the imaginary inactivity of his bowels, which distress would sometimes become so accentuated that he would plead, with a look of almost terror on his face, that he was surely filling up with excreta, even though he had no bodily existence. This state of mind gradually wore him out, and he succumbed to a general failure of the vital powers. Some years ago I had under observation a remarkable case of feigned insanity, where

a man, a professional burglar, in order to secure his transfer from the prison to the asylum, simulated acute melancholia with delusive conceptions with marvellous fidelity and persistence, and had he been perfectly acquainted with Cotard's description of such cases he could not have acted better. When I first saw him he was lying on a mattress in a straight jacket in a prison cell closely watched by two men. He was apparently in a most acute state of mental derangement, and he loudly accused himself of murder, which he would immediately afterwards deny. He called out that he was about to be hanged, that the scaffold was erected, and that the hour of his doom was fast approaching. At intervals he used to knock his head against the floor, and he had thus caused many bruised patches. He succeeded in his object in being transferred to the asylum, where he very soon quieted down, and then confessed that the entire *rôle* was assumed for the special purpose he had in view.

Besides those who deny their own existence there are others who have what is called by Cotard the *délire d'énormité*, a sort of megalomania. While believing themselves deprived of everything they imagine themselves immortal, that they ought not to and cannot die. They lament their immortality, which is only another infliction added to those they already suffer. They cannot die, hence they are bound to suffer for eternity. Sooner or later such patients pass on to mental enfeeblement or complete dementia.

Thus, viewing it as a whole, we can distinguish four stages in this insanity of negation, viz. :—

1. The period of simple melancholia, generally of the anxious type.
2. Stage of negations properly speaking.
3. Stage of delusions of enormity.
4. Stage of dementia.

At the congressional discussion Dr. Camuset, who had been previously requested to report on Cotard's views, summed up his study of the subject in the following principal conclusions :—

1. In a general way, and whatever may be the form and intensity of their malady, melancholics are deniers.
2. In certain cases of melancholia with anxiety we sometimes observe the association of the ideas of negation, of possession, or of damnation, and of immortality.
3. The ideas of negation are met with in other conditions than

melancholia—for example, in the insanities due to senility, in hypochondriacal insanity, and in general paralysis.

Dr. Séglas energetically supported Cotard's views. Basing his opinions on well-observed and conclusive facts he showed that there really exists an insanity of negation systematised and, after a fashion, progressive, and that, therefore, the type described by Cotard should have its place in nosological descriptions. Amongst others present MM. Falret, Ballet, Régis, and Carrier supported Dr. Séglas, admitting with him the reality of the type from the cases already reported in sufficient number. Dr. F. Falret summed up the discussion by giving to the generally received opinion the support of his high authority and vast clinical experience. "I approve," said he, "of the conclusions of M. Séglas. I believe that Cotard in pointing out the insanity of negation has made a great step in advance in the study of melancholia, like that of Lasègue in describing the insanity of persecution. The insanity of negation is a fact, and has a progressive evolution like the insanity of persecution. It commences with simple moral hypochondria, then the symptoms of anxiety appear, with ideas of ruin, culpability, unworthiness, and damnation—all of them possible and admissible delusions. Later appear the absurd ideas of negation, and, finally, delusions of enormity—a sort of melancholic *délire des grandeurs*. Although but little recognised, the insanity of negation becomes more frequent the more we examine the cases from this point of view. It is a natural evolution, and we should apply to it the same distinctions as we do to persecutory insanity, as, besides the essential insanity of negation, delusive negatory conceptions are met with in various other forms of mental disorder. Cotard himself has noticed this particularly, and never attempted to make an entity of all the psychoses with this symptom. As regards prognosis, the delusions of negation are an indication of chronicity, but not of absolute incurability. The intermittent forms seem to be more likely to recover than the others."—(Rep. by Dr. Victor Parant in *Am. Journ. of Insanity*.)

The Ætiology of General Paralysis.—Dr. Cebelle (*Allgemeine Zeitschrift für Psych.* XLIX. Band. 1 and 2 Heft.) presents the results of his inquiries into the causation of general paralysis in one hundred patients in the private asylum at Eendenich. These patients belong to the wealthier classes. He finds that syphilis existed in 53; of these 38 had shown secondary symptoms.

Dr. Cebelle accounts for the larger percentage of cases of syphilis in general paralytics in private over public asylums by the observation that syphilis is common with educated persons. As 47 per cent. of Cebelle's patients had escaped this malady, it is clear other causes had their play. It is rare that general paralysis can be assigned to a single cause. Four cases are assigned to excessive mental exertion alone; 3 cases to syphilis alone. Direct heredity appears in 22 per cent.; and personal anomalies in 44 per cent. Sexual excess was known to have occurred in 41, and abuse of alcohol in 43 per cent. Overwork or exhausting passions in 42. Seventy-three of the patients were married; 27 unmarried. Three of the cases were under 30 years of age; most of them were between 30 and 50; 7 took the disease after 50, and 2 after 60.

The primary lesion of general paralysis is still disputed. Some pathologists—as Calmeil, Magnan, Obersteiner, Mendel, and Gerdes—regard it as a diseased condition of the vessels following upon syphilitic infection, and exciting parenchymatous inflammation of the nervous tissues as a secondary affection. Others—as Tuzek, Wernicke, Joffroy, Pierret, Zacher, and Friedmann—regard the parenchymatous changes as beginning in the nerve tissues, partly with dissolution of the nerve cells, and partly with wasting of the nerve fibres. In the end, both these anatomical elements are involved in the destructive process.—(*Journ. Ment. Science.*)

The Increase of Insanity.—Mr. W. J. Corbet (ex-M.P. for Co. Wicklow, and formerly for many years connected with the Irish Lunacy Administration) contributes to the *Fortnightly Review* for January last an important paper on this subject, and follows it—on invitation—with a similar contribution read at the International Congress of Charities, Correction, and Philanthropy, held in Chicago in June last. Mr. Corbet brings his experience in statistics to bear on the questions involved, and quotes from the past Reports of the English, Scotch, and Irish Lunacy Commissioners numerous figures tending to show that a steady increase in the number of persons becoming insane has been going on. Commenting on this he remarks—"I have written elsewhere on several occasions during the last twenty years, pointing out that, account for it how we may, as time progresses the stream of insanity broadens and deepens continually. The great central fact stares us in the face, it cannot be hidden, no

effort of observation can conceal it. The figures given from official records indisputably prove it. The ominous word 'increase' is written large upon every page of the annual reports for the last forty years, and it is surprising how the Commissioners apparently fail to see the significance of their own figures, or of the emphatic language they themselves have used." Supporting his views by statistical tables Mr. Corbet shows that in 1862 the ratio of the insane to every thousand of the population was—for England, 2·02; for Ireland, 1·36; and for Scotland, 2·01. Whereas in 1891 this ratio stood at—for England, 3·01; for Ireland, 3·54; and for Scotland, 3·17. Dealing with the causes of the accumulation of the insane Mr. Corbet considers that the various factors which have to do with improved asylum treatment, facility of communication, State aid, &c., have exhausted themselves long ere this, and other reasons for the increased ratio of insanity must be sought for. Most important amongst these he places heredity influences, which he believes are becoming more and more operative, according as persons discharged from asylums re-enter the world, and in many instances become the parents of offspring which are frequently either mental or physical degenerates, and which in time people, in their turn, the asylums through the country, the numbers multiplying from a single stock, so to speak. Intemperance he regards as only second in importance to heredity as a cause of the increase. He quotes from Mr. Goschen's Budget speech of 1890, in which he revealed the enormous revenue realised from the sale of intoxicating liquors, and in doing so adds—"Three years have since passed, but nothing has been done. The alcoholic brain poisoning goes on just as before, contributing its thousands of victims annually to swell the population of lunatic asylums, prisons, and poor houses, to add to the seething mass of the morally depraved, and to increase the general death rate of the kingdom."

II. NEURO-ANATOMY AND PHYSIOLOGY.

The Brain in the Chinese.—In the American *Journ. of Nervous and Mental Disease* Dr. Derkum gives an anatomical description of a Chinese subject's brain, the seventh which he has carefully examined. He recapitulates the chief characteristics of the

(^a Mr. Corbet will doubtless find many ready to controvert his statistical inferences, and to show that the increase in the numbers of primary cases of insanity is not at all so alarming as he would have us believe.—Rep.)

former brains—namely, unusual degree of convolution, disposition to anastomosis in the perpendicular and horizontal directions, and marked obliquity of the orbital surfaces of the frontal lobes (with the last-mentioned may probably be associated the peculiar position of the eyes in the Chinese). Blending of the central and Sylvian fissures is said to be a frequent feature of such brains.

The Bulbar Respiratory Centre.—At the session of the Acad. des Sciences, Sept. 19, 1892 (reported in *Le Progrès Méd.*, No. 41), MM. Gad and Marinesen reported the following conclusions from their investigations on the medullary respiratory centre:—
(1) That the destruction of various bulbar nuclei, considered by authorities up to the present, and especially by Flourens, Gierke, Mislawsky, and Holm, as respiratory centres, does not produce, when done under certain conditions, any definite arrest of the respiration. (2) That there exists in the inferior half of the medulla a deeply situated mass of cells the destruction of which causes arrest, and its excitation causes characteristic modifications of the respiration. (3) This region, which we have come to consider as playing the part of a respiratory centre, does not represent a definitely limited zone, but is formed by an association of nerve cells disseminated on each side of the hypoglossal roots. (4) The centrifugal routes descending from it in the cord are direct, and are formed in the anterior reticular zone.

The Anatomy and Physiology of the Dorsal Nucleus of the Vagus.—The following are the conclusions which Holm (referred to above) has arrived at regarding his researches into this special portion of the histology of the medulla oblongata (*Virchow's Archiv*, 1893; *Gaz. de Med.*, Feb. 8):—

1. That the dorsal nucleus of the vagus is, as a rule, the latest to develop of all the nuclei of the bulb.
2. That it is directly connected by nerve fibres with the solitary bundle.
3. That there exists a group of large ganglion cells not hitherto recognised as a nucleus of the vagus, which gives out about half of the fibres of the nerve.
4. That the nerve fibres of this group (fibres of the raphé) have a course perceptibly analogous to that of the fibres from the “knee of the facial.”
5. That the glosso-pharyngeal, like the trigeminus, has, independent of an ascending sensory root, a descending motor one.

The author concludes further:—

That the centre for the tracheo-bronchial reflex should be located in the dorso-lateral part of the dorsal nucleus of the vagus, in the nucleus formed by small ganglion cells.

That the respiratory centre is entirely located in the ventro-median part of the dorsal nucleus of the vagus, in the vagus, in the nucleus composed of large ganglion cells.

Probably these two centres have a different functional significance.—(*Am. Journ. of Insanity.*)

New Methods of Examining Nervous Tissues.—Vassale (*Revista Sperimentale di Freniat.*, Vol. XVII., Fascic. V.) gives the following methods introduced by him and practised successfully in his laboratory:—

1. Mix together 50 parts Müller's fluid and 50 parts aqueous solution of osmic acid of one per cent. strength; to this mixture add 2 grs. of acetate of uranium; shake and decant. A liquid is obtained which in a few days is limpid and slightly yellow. Mix five parts of the liquid with five parts of an aqueous solution of silver nitrate of one per cent. strength, and add, drop by drop, dilute ammonia until the red precipitate formed is quite dissolved. Then add once more the nitrate of silver solution, drop by drop, until a light red colour is obtained—this should persist after shaking well; finally filter. In this liquid place a small portion of spinal cord hardened in Müller for from 40 to 50 days, though a longer time will not be prejudicial. The cord remains in the fluid for from three to ten days, but after the second day trial examination may be made as follows: A portion of gray matter is squeezed between cover-slip and slide in water and subjected to a high magnifying power. A successful specimen presents a meshwork of nerve- and neuroglia-fibres, the former distinguished by the medullary sheath stained by osmic acid, the latter by their extreme tenuity and unstained state.

Having obtained such a result, the next step is to cut a more or less thick section by razor—transverse if the gray matter is to be examined, longitudinal if the white. Squeeze the section between cover-slip and slide slightly, place the squeezed-out tissue in 10 ccm. of distilled water in a mortar and agitate well. Allow a sediment to form, remove by pipette a drop from the bottom of the vessel, and examine under a high power. Specimens so prepared exhibit well nerve elements and neuroglia, the cells of the latter being especially striking.

2. Take a few ccm. of the Müller-osmium-uranium mixture before mentioned and render it alkaline with ammonia. Filter off the resulting yellow precipitate, and in the filtrate place a piece of spinal cord from a calf just killed. In from twenty-four to forty-eight hours make a section—which will be rather thick—of the gray matter, squeeze out in the way mentioned, and examine in a drop of the fluid mixture. The ganglion cells and nerve fibrils of the gray matter are well seen. To make sections place the piece of cord, after thorough penetration by the mixture, in formic acid solution of 3 to 5 per cent. strength; here it is fixed. Transfer to gum, and then harden in weak alcohol. The sections are treated with ammonia or potash, and preserved in a concentrated solution of carbonate of ammonia.

3. A portion of fresh spinal cord from a calf is placed in pure piridin, five times its own volume. In eight to twelve days it is hardened, dehydrated, and clarified by this re-agent. Thence it passes into xylol, and subsequently through the ordinary paraffin process. The paraffin removed, the sections are transferred from alcohol to the following stain: aqueous solution of alum, five per cent., saturated aqueous solution of acid fuchsin added to former by drops until a fairly deep red colour results. In this they remain from one to twelve hours, according to the amount of fuchsin added. Wash in acid alcohol until a rose tint is obtained clear, and mount in balsam. In this way the intra-cornual nerve meshwork is well brought out. Instead of fuchsin, Ehrlich's haematoxylin may be employed.

4. The portion of fresh cord is hardened, dehydrated, and cleared in a mixture of piridin and xylol, equal parts; for from six to ten days sections are cut in paraffin and stained as in No. 3 method. The axis cylinders of the intra-cornual nerve fibres are intensely stained, the medullary sheaths appearing as delicately-stained halos around them.

5. The fresh cord is fixed for twelve hours in absolute alcohol containing sulphate of copper (no quantity specified); it is then placed in piridin for from five to eight days, and prepared for examination by No. 3 method. After staining with Ehrlich's haematoxylin, the fibrillar structure of the ganglion cells is well made out.

6. Gray matter from the fresh cord of the calf is spread out finely on a slide, which is then warmed till the tissue is dry. A

stain is made as follows : to a few ccm. of a 5 per cent. aqueous solution of piridin add four to six drops of a saturated solution of basic fuchsin ; an intensely red transparent liquid results. A few drops of this stain are placed upon the preparation and the slide warmed. Staining is complete in a few minutes. Wash in water ; dry, decolourise, and clear in clove oil ; mount in xylol balsam. In this way the fibrillar structure of the nerve-cells can be rapidly and effectively shown. The author has hitherto applied these methods chiefly to the examination of the spinal cord.

Permanganate of Potassium in Preparation of Fresh Sections.—E. T. Wynne describes in the *Lancet*, Sept. 24, 1892, the preparation of fresh sections of the nervous tissues by Bevan Lewis's method, with the substitution of permanganate of potassium for osmic acid as a fixing agent. The sections, as soon as cut, are plunged into a 0·1 per cent. solution of permanganate, where they remain not longer than ten seconds (four or five seconds is sufficient for normal brain). They are then transferred on a glasslifter to a basin of clean *cold* water. They are slightly tinged yellow, which comes out in the process of washing and staining. The sections which have accumulated in the basin of water are put into a 0·25 per cent. solution of aniline blue black (or a 0·1 per cent. solution of China blue), where they remain from ten to fifteen minutes. A large quantity of staining solution should be used, and care taken that the sections are freely exposed to the dye. When stained they must be well washed in water, picked up on slides, and allowed to dry. The best results are obtained by allowing them to dry slowly overnight, but with care they may be dried in about an hour in a warm chamber. There are three points of importance—the water and the permanganate solution should be cold ; the under surface of the knife should be wiped after cutting each section ; and freezing the tissue hard should be avoided—it should cut like a potato. The advantages which permanganate offers over osmic acid are these—(1) its cheapness ; (2) the solution is of known strength, which can hardly ever be the case with osmic acid ; (3) it is quicker, and by its use the section has not to be floated off the knife before immersion in the fixing solution.

(*To be continued.*)

PART IV. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—**GEORGE H. KIDD, M.D., F.R.C.S.I.**
General Secretary—**W. THOMSON, F.R.C.S.I.**

SECTION OF SURGERY.

President—**EDWARD HAMILTON, President of the Royal College of Surgeons in Ireland.**

Sectional Secretary—**KENDAL FRANKS, F.R.C.S.I.**

Friday, November 10, 1893.

The PRESIDENT in the Chair.

President's Address.

The PRESIDENT, Mr. Edward Hamilton, P.R.C.S.I., said:—If we cast our recollection back on medical literature we find that there was no medium in Ireland of publishing essays on medical and surgical work until 1667. Then William Molyneux established the “Dublin Philosophical Society.” Of its 39 members 11 were medical men, and we find many interesting papers were communicated to it. Dr. Allen Moulin read a paper on vascular supply of the lens. He also gave a description of the comparative anatomy of the elephant. Having dissected one which was burned at the time in Dublin, his description was so accurate as to have been quoted by many modern writers. His dissections of the eye have received favourable notice by the most eminent authorities. The Society meetings were held at Cork-hill, and subsequently at the house of Mr. Weatherel, apothecary, at “Crow’s Nest,” where the Catholic School of Medicine now stands. They established a laboratory, museum, and botanical garden. The Society’s meetings were discontinued in 1686 on account of the troublous state of the times.

Attempts were made to revive it in 1693 and in 1707, but they were not successful, and the papers read during those years were devoid of medical interest. During many years from this time the philosophic transactions of the Royal Society was the chief medium for announcing to the world the discoveries and opinions enunciated by Irish medical men. In 1756 the Medical Philosophic Society was established by Drs. Rutty and Smith. They continued to meet until 1784. Three volumes of their transactions are preserved in the Royal Irish Academy. Other records are lodged in the Royal College of Physicians. In 1785 its name was changed to the "Medical Society." The meetings were more devoted to the habit of dining out, and were conducive to the "feast of reason and the flow of soul," particularly the latter. In 1856 it was revived, but still on the same lines. As Philo-Œsophageals we have all enjoyed its sumptuous hospitality. It still lives amongst us and sheds its light around.

The first meeting of the College of Surgeons in their new premises on the site of Mercer's Hospital was on January 4th, 1790. On the same occasion a memorial was received from a number of members and licentiates of the College of Physicians and Surgeons, setting forth their intention of establishing a Medico-Chirurgical Society, and praying for the protection of the College and the permission to hold their meetings in the theatre, "Mercers-street." Their collection of books became in process of time the nucleus of the noble library in which we have just met. Many valuable papers were here discussed. Further on the students obtained permission to meet in the same place for the purpose of mutual improvement.

I have often heard my father speak of the meetings of this Society, at which he frequently attended and took part in their discussions. He read a paper on "hippo," to which he was led by a work on that subject by Dobington—a book which he often commended to my notice and earnestly induced me to read it. I never was able to find a copy of it, although I searched everywhere to procure it. He described hippo coryza, which was not then generally known; he suffered from it himself most acutely—the mere lifting of the covering of a jar of hippo was sufficient to bring on the most violent sneezing and coughing. Often when looking after his apprentices, when his visits were too long or too frequent, the removal of the stopper from the ipecacuanha sent him at once to another atmosphere, less irritable to his mucous membrane. I may also mention that having charge of a cholera shed at Kevin-street, he attached much value to the emetic action of hippo in this terrible disease. His experience showed him that almost all of those which were treated with astringents and opium died. He never went to a case of cholera without a scruple of hippo in his pocket, which he almost in all cases administered. Sometimes it acted as an emetic, sometimes not.

But the amount of his success contrasted marvellously with what he had seen. In his own graphic statement, "get rid of the enemy and then repair the breaches." He attached much of his success to the after-effects of hippo acting as an astringent, as we know now how beneficially it acts on the mucous membrane in dysentery—*ipacacuanhae radix anti-dysentericae*. Is not this a forecast of the pathological history of the disease?

On the 17th of November, 1852, the first meeting of a new Medical Society was held; the name given to it was "The Surgical Society of Ireland." The Society included 65 members, 54 licentiates of the College, and the subscription was one guinea a year. For many years the Society flourished; all the leading men were active members and took part in its proceedings. The Surgical Society of Ireland has done good service in the advancement of the science and art of surgery. And what lively debates we used to have! when Butcher was in his zenith, Stapleton to the fore, Henry Kennedy always "*en evidence*;" Jacob, Hargrave, Hutton, and Bellingham, with their series of aneurysm cases, which merited the name of the aneurysmal society given to it by a distinguished but satirical member. An eminent surgeon ends his record of such a case with the Irish pun, "the patient died cured." All these have left pleasant traditions behind them.

The elder members long mourned over the relics of the past, and thought the new *régime* would not be a success. Some of us have lived to see its brightest anticipations fully realised. In 1882 all our medical societies were amalgamated under the title of The Academy of Medicine in Ireland, to which her Gracious Majesty has since permitted the adjunct of "Royal."

And, gentlemen, this is the heritage which has been handed down to you. I would charge the junior members to preserve it inviolable. Let not its history of years gone by be tarnished; let not its traditions be sullied with one selfish thought. Since its new organisation there has been no lack of pabulum for its meetings; on the contrary, there seems almost a plethora of material down for discussion, so that a long time is necessary to bring a paper to its maturity. And thus there is ample opportunity for the author's *sæpe vertere stylum*. Let us make our communication solely for advancement of surgical science, and not merely to ventilate our new-fangled ideas in the crush to find what has only the charm of novelty to recommend it. In the organisation of a Society like this much must depend on the officers, for Presidents may come and go; there is one officer who is the life and mainstay of all its working powers—the General Secretary; and where could we find one more courteous, more anxious to please, or more efficient, than William Thomson?

Removal of Tumour of the Brain.

MR. F. ALCOCK NIXON read the notes of a case in which he had removed from the cavity of the skull a tumour two inches long, one inch broad, and half an inch thick. It implicated the motor area, commencing in the leg centre. It was accurately localised by a careful grasping and analysis of the symptoms. Prior to the operation the patient was comatose and hemiplegic, and his friends refused to allow anything to be done on the grounds that he was obviously dying. A month afterwards he was quite conscious, able to move his arm and leg, to sing and repeat the verses of a song. He described correctly events which had occurred more than a year previously. His temperature was normal. Subsequently he suffered from haemorrhage from the surface of a hernia cerebri, and died a few hours afterwards. No autopsy could be obtained. Mr. Nixon described at some length the different methods suggested in connection with cerebral topography, discussing those of Reid, Thane, and Fraser, and expressing his emphatic opinion that Professor Fraser's method was by far the most reliable and comprehensive, and of greater practical utility to the surgeon than any of the others.

MR. THORNLET STOKER inquired whether it was a lesion connected with the dura mater, or whether it was intra-dural; also whether there was any obliteration of the arachnoid space between the dura mater and the growth in the brain.

SIR W. STOKES inquired whether the sebaceous cyst lay over the situation of the tumour which Mr. Nixon had removed. It was interesting for him to learn that the fibrous envelope of bone was stripped off at the situation of the alleged sebaceous cyst. He remembered, a good many years ago, a very animated debate at the then Surgical Society regarding cysts on the scalp. One of the points then discussed was the effect of these cysts on erosion of the periosteum. He would be glad to know whether this was really a sebaceous cyst, or whether there was any connection between it and the tumour which was removed.

MR. WHEELER said that, owing to Mr. Nixon's careful diagnosis, there was no difficulty in coming to the situation of the lesion. The operation was one of great difficulty and required a great deal of care in the removal of the tumour. The latter was very adherent, very large, and dipped down deeply into the structure of the brain. The operation was performed most dexterously, and everything looked most satisfactory after it. It was unfortunate that there was no autopsy held to show where the haemorrhage came from, but there was no reason to believe that there was any vessel injured at the time of the operation.

MR. M'ARDLE thought that the history of hernia cerebri was not possibly as well understood as it should be, and in searching out for the

cause of death he wished to point out that septic infection would produce death about the time that Mr. Nixon's patient succumbed. He would like to know as to the character of the haemorrhage, which would aid them as to the cause of death; and, second, the character of the protruded portion of the brain immediately preceding death. He said absolute alcohol had the power of keeping the brain aseptic, and at the same time of causing the greatest amount of pressure to be applied to it—greater than they could apply with safety by any dressing.

MR. MYLES said it was an entirely chronic inflammatory thickening of the dura mater. He thought this case illustrated graphically the great progress of brain surgery. The different methods of location of the skull contents were very interesting, but Professor Fraser's appeared to him to be the most accurate and complete. By using his charts there would be no difficulty in locating any part of the brain.

MR. NIXON, in reply to the Vice-President, said there was certainly obliteration of the arachnoid spaces, and the membranes were all matted together. With reference to Sir W. Stokes' question, he had no doubt that it was a sebaceous cyst, and it was seated directly over the seat of the disease. There was a good deal of inflammation of the scalp over the roughened surface of bone, but whether there was any connection between the cyst and the tumour he could not say. In reply to Mr. M' Ardle, he said the haemorrhage was venous, and it came from a spot on the surface of the hernial protrusion. The latter did not appear to be in a healthy condition, because, when he removed a portion of the hernia, it gave him the appearance of a slough separating. The treatment which he adopted was pressure, as he was not aware then of the good effects of absolute alcohol.

On the Treatment of Urinary Fistula.

MR. MYLES described the generally-accepted views on the pathology and treatment of this condition, and said that however varying were the methods described by operators, the general principles that underlay them were only two—1st. To make it easier for the urine to escape by a natural channel than by the fistula. 2nd. To relieve the fistulous tract of the irritation caused by the trickling of urine over its surface.

With reference to the first of these, Mr. Myles having briefly discussed the merits of the various methods in use, expressed a decided preference for the method and instrument of Maisonneuve. With reference to the 2nd, the speaker discussed the various methods already in use, giving it as his opinion that in obstinate cases the plan recommended by Mr. Thomson, of the Richmond Hospital—viz., supra-pubic cystotomy as a preliminary measure, followed by free division of the stricture and dissection away of the fistulous channels—was the best.

Mr. Myles read notes of a remarkable case of large penile fistula, complicated by stricture and vesical calculus, in which he had adopted this method. The stricture was first Maisonneuve'd, supra-pubic lithotomy was then performed, several large phosphatic calculi were removed, the edges of the bladder wound were then sutured to the opening in parietes, and a permanent drain was provided for from the bladder. The fistula was then attacked, but it was found that the loss of the urethral canal was so great that the edges could not be made to meet over a No. 4 catheter. The urethral roof was therefore freely divided, causing considerable bleeding, and in this manner sufficient material was obtained to allow of the edges being brought together over a No. 8 catheter. The perfect rest to the wound obtained by the supra-pubic drain proved of great value, as within 10 days the fistula had completely closed, and the abdominal wound was allowed to heal by simply removing the drain.

The other case was still more remarkable. A young man fell over an upturned chair; one of the legs, which was broken, penetrated the rectum, causing haemorrhage, great pain, and collapse. Two days after he was brought to hospital with symptoms of violent peritonitis. On examination no marks of violence were seen at the anus, but about two inches up the bowel a large jagged wound was felt in the anterior wall; a sound passed through this apparently into the abdominal cavity. The bladder was injected through a catheter, but no fluid appeared at the anus. Laparotomy was at once performed. The peritoneum was covered with lymph, and the cavity contained foul-smelling blood-stained serum. This was thoroughly washed out with boric lotion and an attempt made to find the opening in the rectum. The staff passed into the bowel wound could be felt by the side of the bowel but behind the peritoneum, and all attempts to find the aperture in the sac were fruitless. The wound was therefore closed, a large drainage-tube passed through the anus into the wound of rectum, and free drainage provided for by first nicking the sphincter ani and afterwards thoroughly stretching it. For two days all went on well, but then it became evident that a recto-vesical fistula had developed. This was treated by tying in a catheter with a long tube attached, so as to keep the bladder empty, and within a week the fistula had closed and the patient made a rapid and complete recovery.

The PRESIDENT commented on the good results of free incision in treating such difficult cases.

DR. BROOKS said there was one point he did not hear enunciated—that was with regard to the excision of fistula, which was described about six months ago by an American writer. There was one case where a man got a fall from the top of a ladder and ruptured his urethra at the junction of the membranous and bulbous portions. The surgeon cut down on the wound and endeavoured to bring the ruptured ends together,

but was unable to find the cystic end. He then made a supra-pubic cystotomy and passed a tube from the bladder into the perineal end of the urethra. The two parts were then sutured together, and the wound healed rapidly. Some time after the same surgeon met with two cases of fistula of long standing, and having excised the diseased portions he brought the healthy portions together, and the results were very satisfactory. He would like to have the opinions of the surgeons present with regard to the treatment.

MR. M'ARDLE said that the value of supra-pubic cystotomy for the purpose of giving physiological rest to the urethra was very great. He had been in the habit of carrying it out himself for the relief of tubercular prostate. With regard to the operation itself, he thought that once they escaped the veins on the post-pubic cellular tissue and brought the edges of the bladder to the skin all the trouble was over. With regard to the tendency to fistula above the pubes, he thought that if the incision is made directly in the middle line closure takes place readily.

MR. THOMSON said he was not prepared to adopt the rather gloomy view which Mr. Myles had taken with regard to urinary fistula in general. His own experience was that the vast majority of those cases where they depend upon ordinary organic stricture are curable. He could only remember two cases which seemed to resist all ordinary treatment. One of them was a case of traumatic stricture, in which the original injury had destroyed a large portion of the urethra, and that mutilation had been subsequently increased by some six operations which had been performed upon the patient. But as far as the bulk of the cases went he was quite satisfied that the tendency of urinary fistula, perineal or scrotal, was to get well, provided they established a perfectly free channel in the urethra for the discharge of the urine, and supplemented it by perineal section. Of course, a great number of these cases had been neglected for years, and they would find the tissues matted and indurated, and unless they took considerable care their incisions would not heal. In his own cases he always followed out these fistulous tracts to their utmost limits, and dissected out all the hardened tissues. In all these cases it was absolutely necessary to have a free water track, and he always took care to free the whole urethra by the aid of Maisonneuve's instrument. In one case a fistula had existed for eight years, but after a considerable amount of patience and work the result was entirely satisfactory, and it had now remained closed for more than three years. Mr. Brooks had referred to the question of dividing the urethra and bringing the divided ends together; but he was not sure that there was any necessity for that, because, by adopting the method he (Mr. Thomson) had referred to, they would have a fresh wound in ordinary healthy tissue, and it would heal up very kindly. Then, even if there was any considerable induration about the urethral orifice of the fistula, they

could nip it off with scissors; but to take out a considerable portion of the urethra was a rather serious proceeding, and it might later on establish a very uncomfortable stricture. He thought the results of opening the bladder in the supra-pubic region for the cure of obstinate fistula, as he (Mr. Thomson) had suggested, were extremely satisfactory, and the tendency was for the wound in that region to close once the urine had taken its normal track and the perineal opening closed.

DR. BENNETT inquired whether supra-pubic drainage controls the tendency to erection of the penis, because he thought the difficulties of curing a perineal fistula were increased by their inability to control its erection. He was aware that perineal drainage did not prevent such phenomena.

MR. WHEELER said, with reference to Dr. Brooks' remark, he remembered a case which came to him from South Africa. The man had fallen across a beam of timber and got extravasation of urine. Symes' operation was performed on him there, plus division of the scrotum as well, so that when the patient came to him you could put a testicle on each thigh. He healed all the fistula down to the tuber ischii, and then one remained in the centre of the urethra. He then pared the edges of this fistula, and having passed in a full-sized catheter, pinned the urethra together with small pins and painted the part with collodion. The man made an excellent recovery, and 10 years after could pass a No. 8. He also remembered a urinary fistula at the umbilicus which, on being touched by the cautery, got well.

MR. NIXON said Mr. Thomson's practice was a most important one—i.e., not scraping the diseased tissues but their complete removal. He remembered a case of 15 years' standing, where the tissues were so solid as to resemble elephantiasis, and on removing the whole mass with a curved scissors healing was complete.

MR. THORNLEY STOKER said that although supra-pubic drainage was probably the best method for draining the bladder, yet it was a method which was not possible in a good many of these cases, because the bladder had become so contracted that the operation of supra-pubic cystotomy was scarcely justifiable. In some of them the bladders were no larger than walnuts, and the apices were often below the lower edge of the symphysis pubis. While he agreed with Mr. M'Arkle as to the simplicity of supra-pubic cystotomy, he could not understand him setting up objections for the sole purpose of knocking them down. He never heard yet that the rectus muscle was an objection to supra-pubic cystotomy, and it would be a disgrace to the surgeon who would cut it.

MR. MYLES said he had no experience of the operation Dr. Brooks inquired about, but he thought it was one of almost stupendous difficulty. To cut down and dissect a little of the penile portion of the urethra was

not so very difficult, but in the great majority of cases the contraction was at the membranous portion, and he thought the vitality of the parts was so slight that the mere introduction of sutures was likely to be followed by sloughing. In reply to Dr. Bennett, he said he did notice that the patients suffered from the usual phenomena of turgescence. He thought the cases where it is impossible to bring the bladder forward must be very few, and he reminded Mr. Stoker that in the frozen subject the top of the prostate gland is never below the symphysis pubis.

The Section then adjourned.

SUCCI'S DIGESTION.

DR. SANSONI has published in the *Riforma Medica* some notes on the gastric secretion of Succi, the fasting man, which are pathologically interesting. It would appear that Succi's stomach does not secrete hydrochloric acid, the defect being functional and not the result of an anatomical lesion. It is believed that prolonged fasts have brought about this state of things, and that in consequence of it the sensation of hunger is suppressed. The absence of the acid, moreover, probably helps in the resistance to the effects of starvation.

ASTHMA TREATED BY HYPNOTIC SUGGESTION.

MR. J. M. CREED read before the New South Wales Branch of the British Medical Association notes of a case of asthma treated by hypnotic suggestion, which are reported in the *Australasian Medical Gazette* for June. The patient, a shoemaker of fifty-two years of age, had suffered every winter since 1879 in England, and had come to Australia to try the effects of a warm climate. He had derived little benefit from treatment—even Himrod's Asthma Cure, although it had been “resorted to by the late Earl of Beaconsfield during his last illness,” failed. He was hypnotised by Mr. Creed every day for ten days; and assured, while in the somnambulistic condition, that his spasm would be less, his breathing easier, and that his cough and expectoration would improve. On the third day he was much relieved; before the tenth “he was free from respiratory distress, having hardly any cough, walking upstairs without difficulty and with very considerable speed in the streets.” “Though lately he has not had them, for a portion of the time since he has been under hypnotic influence he has had occasional modified attacks of dyspnoea; and as these generally occur when he is not near me, I have given him a written order ‘to sleep when he reads it, and to awake after five minutes, breathing freely.’ This he always carries, and he tells me it has never failed him, though he has not found it necessary to resort to it during the last week.”

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

*Presidential Address.** By JOHN W. BYERS, M.A., M.D., President of the Ulster Medical Society; Professor of Midwifery and of Diseases of Women and Children, Queen's College, Belfast; Examiner in Obstetric Medicine, Gynaecology, and Diseases of Children in the Royal University of Ireland; Physician for Diseases of Women to the Royal Hospital, Belfast; Consulting Physician to the Belfast Hospital for Sick Children.

GENTLEMEN,—Will you allow me to offer you my warmest thanks for the great honour you have done me in electing me President of the Ulster Medical Society. While I regard the compliment as a very high personal one, I know that you also wish to show the importance you attach to the particular branch of Medicine with which I am connected, and by this public recognition to mark the great estimate you attach to a thorough knowledge of it in this Society. While success in his calling must be an infinite source of gratification to any man, still there can be no honour which to him is so pleasing as that which arises from the good fellowship and kindness of his professional brethren, as he naturally feels that they are best able to judge of his abilities, his character, and his work.

I cannot pass from this subject without a word expressive of my extreme gratitude to the Profession in general for their recent courtesy, as well as for their hearty kindness and sympathy, when I offered myself as a candidate for the Chair of Midwifery and of Diseases of Women and Children in Queen's College, Belfast. Permit me to assure you that if any one thing more than another could afford me a stimulus to endeavour by all the means in my power to advance the School of Medicine with which we are all proud to be connected, and which holds such a high place in our esteem, that incentive would be found in the confidence placed in me by the gentlemen I see before me this evening, and by my professional brethren throughout the North of Ireland. Good fellowship and kindly brotherhood have always been distinguishing features of the medical profession, and these, I trust, will grow and increase among us here in Ulster. For, though we may not with formality turn to any mere code of rules for our guidance, we shall never go wrong in our action if we hold the honour of each other as highly as we do our own, and in every professional difficulty be guided not only by a strict integrity but by an endeavour to do to others simply as we would wish in the same circumstances that they should act to us.

* Delivered to the Members of the Ulster Medical Society at the opening of the Session 1893-94.

Looking back on the past thirteen years since I became a member of the Ulster Medical Society, one cannot fail to be struck by the changes which have taken place. We miss many of the kindly faces of our older members, who have either occupied this Chair or who have ably taken part in the discussions that from time to time came up at our medical gatherings. Some whose portraits adorn these walls have passed away, and may it not truly be said of many of our brethren, in the language of a member of the profession : "The dignity of a silent memory is not to be undervalued. Who knows whether the best of men be known, or whether there be not more remarkable persons forgot than those that stand remembered in the known account of time. The greater part must be content as though they had not been, to be found in the register of God, not in the record of man."

You have all, no doubt, observed the great change that late years are bringing among us in the direction of specialisation. "Tempora mutantur, nos et mutamur in illis." In other words, we must adapt ourselves to the altered circumstances of life.

Owing to the great activity of scientific and enthusiastic workers, enormous strides are being made in every department of medical science. No one can possibly keep up with all these advances in every direction, and hence from sheer necessity and from want of time (apart altogether from taste or inclination, or from the opportunities afforded by hospital appointments) if we are to keep pace with these advances or continue to make progress, one is forced to pay more particular attention to one branch of the science, while another gives attention to some other. This tendency to specialise, as the learned President of the British Association said in his recent address, "however much we may regret its necessity, is an essential concomitant of progress." Specialisation becomes more marked in large cities like Belfast, where there are numerous hospitals, and where abundant clinical experience can be obtained and the necessary operative dexterity acquired, and where there is a sufficient population to support those who have won a reputation in any of the special branches of medical science. Many think that the method so common in Scotland of medical men getting a sound knowledge of general practice before adopting any specialty is a good one. By following this course a doctor is less likely to take too narrow a view of a case, a fault often laid at the door of specialists. We must never forget how closely the different organs of the body are correlated, and he who from his special training allows himself to think that the only organ to be looked after is an eye, a joint, an uterus, or a liver, will often neither be correct in his diagnosis nor effective in his treatment. Our aim should, therefore, be "to know something of everything and at the same time to know everything of something." As an evidence that really good work is being done in the North of Ireland in the different departments of our

science, I have only to refer to the record of the meetings of this Society, and of the North of Ireland Branch of the British Medical Association. I hope the time is soon coming when we shall publish the full proceedings of both these bodies, each session, in a complete form. Such a volume would form a permanent record of our work, and, in addition to its scientific value, would be an incentive and a stimulus to us all. The only thing that is wanted is a member of the profession who will undertake the difficult and laborious work of editor, and we all know one whose power of work and literary taste mark him out for the post. The honorary officers of both these societies will, I have reason to know, do all in their power to help on this good work, and I venture to hope that a pecuniary grant would be made by both medical societies out of their accumulated surplus which would in accomplishing such an object be admirably spent. I hope that during the present session a beginning will be made in this direction, and that the great objects for which these societies exist—to encourage fellowship in our work, and to stimulate scientific research—may be more than ever promoted. We all know how difficult it is in the activity, hurry, and worry of practice to keep up that real student life which is an absolute necessity to any progress. It is difficult for many of us in our busy lives to find the time to peruse the medical literature with which we should all be familiar, for never in the history of the science of medicine has there been such activity as in recent years. The remarkable advances in our knowledge of chemistry, bacteriology, and experimental research have contributed to this progress, and hence to the scientific medical man the present is an intensely interesting period. The recent lamented death of the distinguished Frenchman, Charcot, has emphasised the advances in our knowledge of nerve diseases. A new light has been thrown on the physiology and pathology of the thyroid gland by recent discoveries with reference to myxoedema, and a disease hitherto regarded as hopeless has become amenable to treatment. In dermatology Dr. Bramwell's case of psoriasis, cured by the administration of thyroid extract, opens up new fields in the therapeutics of the skin. The most casual reader of the daily papers is relieved on finding that a case reported to be cholera is not that disease, from the fact that further careful examination (microscopic and bacteriological) has failed to find the comma bacillus, whilst he forgets, or more probably has never been aware, that his mind has been relieved through the practical application of some of the greatest and most recent discoveries in medicine, and how wonderfully have hygiene and modern progress been vindicated by the way in which medical forethought and skill have battled with this fell disease, keeping it still at bay throughout the entire coast-line of these islands.

What advances are taking place every day in the surgery of the

brain, of the chest, and of the abdomen! But if progress has been great in medicine and in surgery, the recent advances in midwifery and in gynaecology are not less remarkable. In gynaecology there has been a special activity of work. The science has become almost entirely surgical, but on many questions relating to diseases of women there has been the greatest divergence of opinion, and occasionally, it must be admitted, rather too much acrimony in their discussion. On no point has the conflict been keener, or the diversity of opinion more marked than on the question of the treatment of the inflammatory affections of the female pelvis—in a word, whether surgical interference is or is not frequently called for in cases of pelvic inflammation. We have on the one hand men of the greatest experience telling us that abdominal section is not required in pelvic peritonitis, except in rare and exceptional cases, while the teaching of another school is that such surgical interference is the correct treatment in the vast majority of cases. The only way in which this marked divergence of opinion can be explained is that our powers of diagnosis have not yet reached that state of perfection that we can tell with accuracy the condition of the parts in every case of pelvic inflammation; and further, we are unable always to be certain whether a swelling is purulent or not. There are not wanting signs that the pendulum which has swung rapidly from the non-interference view to the opposite of very frequent abdominal section in these cases of pelvic inflammation is coming back to an intermediate or stable position. There is no man who has given his views on the question with greater fairness than my friend Dr. Cullingworth, and I think we shall all agree with his conclusions when he says—"I do not for a moment suggest that every case of inflamed Fallopian tubes should be operated upon; on the contrary, I am of opinion that most of them recover without doing so, but there is a large residuum of cases—most of them chronic, some few acute—in which nothing but an operation can save life. And there is a still larger number of cases where a timely operation rescues the patient from years of misery, incapacity, and chronic invalidism."

We are also indebted to Professor Pozzi for some admirable procedures, by which, in operative interference with the uterine appendages, any healthy portion of the ovaries may be preserved, and in this way the function of menstruation may still be maintained, and a less mutilating operation be performed. But, gentlemen, although, as I have attempted to show, in recent times there has been the greatest activity in gynaecology, it is very remarkable that it is in midwifery that the advances have been most striking. To my mind the greatest progress has been made (1st) in the various means that have been devised for the delivery of living children with comparative safety to the mother in the case of contracted pelvis, and (2nd) in our knowledge of the diagnosis and treatment of

ectopic or extra-uterine pregnancy. For advances in the former we are indebted mainly to the Continental schools, while our knowledge of extra-uterine gestation, both in its clinical and operative bearings, represents one of the greatest triumphs of British surgery. Let me say a word on each of these interesting subjects.

There can be no question that in former times the frequent performance of craniotomy in English practice was very discreditable; and the greater saving of infant life in recent years has been due to three causes—(1st) The introduction of the axis-traction forceps; (2nd) The re-establishment of Cæsarean section as a justifiable operation; and (3rd) The revival of symphysiotomy.

It was in 1877 that Tarnier first announced that he had invented a new forceps, which he claimed would take a proper grasp of the child's head, would allow it to descend in the axis of the pelvis, and would also supply the accoucheur with the means of knowing how to continue his traction suitable to the plane of the pelvis through which the head was passing. A variety of modifications of this instrument has been made. I show you two (Neville's and Milne Murray's). The instrument is specially valuable in the justo-minor or generally contracted pelvis, and even in the flat pelvis I think its use is superior to turning. There is no doubt that the routine use of axis-traction forceps will prevent craniotomy being done in many cases.

There is no more interesting piece of obstetric history than that of the vicissitudes of Cæsarean section. While the operation was practised among the Jews from very early times, the first recorded case was one in 1500, but the results were very bad. In Vienna for a hundred years there had not been a single success; in Paris the operation was as unsuccessful, for up to 1873 there had not been anything but failures for the previous 80 years. In England during the eighteenth and part of the nineteenth centuries there was the same dismal record. The Profession, anxious to accept any less dangerous substitute for the Cæsarean section, welcomed the operation introduced by Professor Porro, of Pavia, in 1876, and being modified slightly by Müller, it was approved of by the authorities at Vienna, the then great obstetric school of the Continent, and the Cæsarean operation seemed for ever displaced. But the Porro operation, as it necessitates the removal of the uterus, was a very mutilating one; it did not satisfy obstetricians, and in 1882 Leopold, of Dresden, operated in a new way suggested by Sänger, of Leipzig, and to these two distinguished men we owe the revival of the modern conservative Cæsarean section. The latest available statistics of Leopold are 50 cases—46 mothers and all the children saved. Murdoch Cameron, of Glasgow, who has simplified the operation, has had 18 cases, with two deaths. The combined mortality of both these operators was under 9 per cent. The principal causes for the great success of the modern

Cæsarean section are the use of aseptic precautions and the accurate suturing of the uterus. The greater experience in abdominal surgery, the fact that the operation is not done as a last resort, and the attention to details are also to be borne in mind.

The Revival of Symphysiotomy.—A student in surgery called Sigault inaugurated this operation in Paris in 1767, and did it successfully for the first time in 1777 on a soldier's wife. The operation was strongly opposed, and was almost forgotten when in 1863 Morisani, of Naples, studied it on the cadaver, and in 1866 performed it successfully on a living woman, and saved her own and the child's life. Having revived it in Italy, he sent Dr. Spinelli, as his ambassador to Paris, and he illustrated it experimentally to the obstetricians there on November 16th, 1891. Professor Pinard took it up warmly, and in 1892 he and his assistants performed symphysiotomy thirteen times at the Clinique Baudelocque with no maternal deaths, and all the children were extracted living; three, however, died shortly afterwards. It is a very remarkable fact that at the Clinique Baudelocque during 1892 out of 1,800 cases Pinard has had no embryotomy in a living foetus. Morisani has had 22 cases. Tarnier approves of it, and, what is most remarkable, Leopold thinks the operation safer than the Cæsarean section, and he would now limit the performance of the latter to cases in which the brim conjugate is less than $2\frac{1}{2}$ inches.

Symphysiotomy is essentially a conservative operation. Morisani says below $2\frac{1}{4}$ inches conjugate symphysiotomy is not practicable. It seems specially suitable to those classes of cases in which the ineffectual use of the forceps shows that it is impossible to extract the child. It is useful in small or flattened pelvis, in rickety pelvis, and in those cases where the outlet of the pelvis is contracted. The operation (division of the pubic bones) is not a difficult one, but there is a risk to be specially guarded against—the wounding of the urethra. The essential point in the operation is the division of the symphysis from above downwards, and from before backwards. The pubes must be separated for at least 4 centimetres, and not beyond 7 centimetres ($1\frac{1}{2}$ inches to about $2\frac{1}{4}$). Let me make a practical application of these advances. Suppose we are called to a woman in labour, and we find that owing to pelvic narrowness it is impossible for the foetus to be born *per vias naturales*, or let us say we have managed to apply the axis traction forceps, and are unable to deliver the child, and that in both cases the child is living, what are we to do? We may perform an operation with certain death to the child and comparative safety to the mother, or we may adopt Cæsarean section with comparative safety to the child, but endangering the life of the mother; or we may take the plan now so popular in the Paris *cliniques*, of symphysiotomy. The question is still a debatable one; each case must be settled on the merits, and whatever course is adopted the patient

must be made thoroughly conversant with any risks she has to undergo. I think, however, we may formulate these rules:—

(a.) If the brim conjugate is less than $2\frac{1}{2}$ inches the modern improved Cæsarean section is the best operation.

(b.) If the brim is not less than $2\frac{1}{4}$ inches then symphysiotomy is practicable, additional room being gained by the section of the pubes; but it is generally in cases where there is not so much contraction as this, but where it is impossible to deliver without embryotomy, that symphysiotomy is suitable.

(c.) Porro's method may be restricted to cases where, owing to tumours (ex-fibroids), it is necessary to remove the uterus.

By these methods the field for craniotomy is much narrowed. It may still be required in cases of contracted pelvis where the child is dead. Its limits are a conjugate of $2\frac{1}{2}$ to 3 inches, with a lateral measurement of $1\frac{1}{4}$ inches. If the child is hydrocephalic it may be needed, and in some cases of accidental haemorrhage, or where the mother absolutely refuses to allow any of the other methods. But if this mutilating operation has been done once our duty is to put very strongly before her the value of symphysiotomy, or of Cæsarean section, in case she becomes pregnant again.

I turn now to the second great advance in obstetric medicine which reflects the highest honour on the British School—the management of extra-uterine pregnancy. And if I spoke previously of what has been done on behalf of the child, I will now be able to show you that our recent knowledge in the diagnosis and treatment of ectopic pregnancy has added immensely to the saving of the life of the mother.

[PROFESSOR BYERS then discussed the diagnosis and treatment of tubal pregnancy.]

Gentlemen, I have attempted to put before you some of the greatest obstetric advances of recent years, but some of you may reply, and perhaps with fairness, that many of the procedures that I have described can be done only in hospitals, and therefore can, in many cases, be carried out only by those who have gained a special experience. Let me then ask you to consider, in conclusion, a subject which concerns us all, and in which, I am sorry to say, a great deal yet remains to be done—I refer to the mortality of child-birth. The main causes of death at child-birth are accidents—such as the various forms of *ante-* and *post-mortem* haemorrhage, eclampsia—and puerperal fever. Let me give you some statistics on this question from an interesting paper of Dr. Boxall. We shall take the mortality for two periods before 1860 (from 1847) and since 1880. It was about this latter date that antiseptics were introduced. Taking the average mortality for 10,000 confinements we find that in London it was, before 1860, 54·7, while since 1880 it has fallen to 37·4. In the provinces it was 50·0 before 1860; since 1880 it is 48·9—that is, there is

no appreciable difference. Examining the two causes of mortality we find that before 1860 in London, from "accidents of child-birth," it was 30·6, while this has fallen since 1880 to 15·9. In the provinces it was, from the same cause, 34·2 before 1860; it has fallen since 1880 to 23·3. In London, before 1860, the death-rate from puerperal fever or metria was 24·1. Since 1880 it has fallen to 21·5. In the provinces before 1860 the puerperal fever death-rate was 15·8, since 1880 it has risen to 25·6.

To sum up, the death-rate in the provinces shows no general diminution, while it does in London. Taking the chief causes of the mortality, we find that both in the provinces and in London deaths from the accidents of child-birth have diminished rather more in the capital, from the fact that skilled assistance in these emergencies can be more readily and quickly obtained there. On the other hand, the striking fact is that in London the death-rate for puerperal fever has perceptibly diminished, while in the provinces it has actually increased, for instead of accounting for about one-third, as formerly, it now causes more than half the total mortality. What is the explanation of this striking fact? It is evidently due to the complete alteration that has taken place in the mortality of lying-in hospitals in London since the introduction of the routine use of antiseptics and their more frequent adoption in general practice. In former times maternity hospitals were the hot-beds of puerperal fever. The mortality at certain periods in these institutions reached the awful height of 344 per 10,000 deliveries, and the cause of the death-rate was chiefly puerperal fever, 75 per cent. of the deaths being due to this cause. No wonder that the Profession cried out for the closing of such institutions, but fortunately the Obstetricians, taking a hint from what Lister had done for surgery, applied the same principles to midwifery, although Semmelweis had before in vain suggested them, with the striking result that puerperal fever and other septic processes have been eliminated, and, as has been said by the able Master of the Rotunda in his recent report, the morbidity of the patients is the true test of the efficiency of the measures taken to secure their safety. Sir Wm. Priestley, in his paper read two years ago at the International Congress of Hygiene, calculated that no less than 3,011 lives of mothers had been saved as the result of this new scientific method of treatment. The experience gained from lying-in hospitals shows us clearly that puerperal fever is a preventable disease. We must take them as our models, and aim in private practice at following out the principles adopted there, with, of course, certain modifications. In the modern lying-in hospital Cæsarean section and symphysiotomy and other serious operations can be done with scarcely a rise of temperature, while, notwithstanding the aggregation of patients from the poorest and filthiest parts of a city, puerperal fever is almost unknown. The maternity has become the place of greatest safety for the lying-in woman, while in her home, and that, too, very frequently amongst

the upper classes, she is still exposed too often to many of the risks of child-bearing. Is this difference not due to the fact that the dangers of the hospital are so apparent that every precaution is taken by all who come in contact with the patient to overcome them? When both we ourselves and the nurses working under us (and they who get their experience in maternities are very differently trained now from what they were in former times) take every opportunity for thoroughly disinfecting the hands, instruments, &c., and, in a word, everything brought in contact with the patient immediately before, during, and after delivery, avoiding frequent vaginal examination, and endeavouring rather to recognise her condition by abdominal palpation, then we may hope that all septic processes will cease, and that the crowning glory of modern obstetrics—the abolition of puerperal fever—will be attained in private practice as it has been in the public maternities. Let me again say, on every doctor, except the pure specialist in other departments, devolves the duty of forestalling and preventing not only puerperal fever, but the many accidents and complications to which women are liable in child-bearing. We have to watch that those who are expecting to be confined shall be in a condition to sustain the exhausting fatigues and risks of the puerperal state, and endeavour not only to minimise the death-rate, but so to treat each individual case that there shall be less liability to subsequent gynaecological disease. This requires not only experience and practical training, but it demands the most unremitting care on the part of the practitioner.

Our knowledge of many of the diseases accompanying child-birth, though they have been recognised from the earliest times, is still far from perfect. A wide field remains as yet unexplored, let it be ours to devote our best energies to its clinical and pathological investigation. However obscure many of these diseases may be in their origin, there can be no doubt that they often leave behind them mischief that is both painful and lasting. It is impossible for us to urge too strongly the importance of the closest attention to this branch of medicine, for, gentlemen, depend upon it, extreme and what may be considered almost exaggerated care on the part of the accoucheur, will certainly have its reward in the most beneficial results to both mother and child.

I must not weary you, however, by dwelling longer on these points, so familiar to every one who hears me. I trust, during the year on which we have entered, this Ulster Medical Society may prove very helpful to the cause we all have at heart—that is, to investigate the diseases and to alleviate the sufferings of our fellow-beings, whether men or women. The same amount of logical thought or of clear facility of expression is not given to each of us, but in this Society, where we all meet on equal terms, if we manifest an eager and sympathetic attention to all that is brought forward, anxious only to find truth, we shall not merely learn much, but we shall each prove an unconscious stimulus to those who

come to give their experience of the pathology, diagnosis, or treatment of disease. We shall jealously guard the interests of the Society and of the Profession we have adopted, by giving a regular attendance and close attention to all the meetings, taking the utmost pains in our different departments to keep ourselves abreast of all recent progress and of all new discoveries in our science, so that we may impart each his own quota of information, for do we not meet as students to learn by each other's experience, and not only in the interests of medical and scientific research, but that we may have at our disposal more of those resources which enable a patient who cannot recover to have less acute suffering as this earthly life ebbs slowly away.

BOMBAY CENSUS.

THE *Indian Medico-Chirurgical Review* for June, 1893, contains a comparison of the results of the three censuses which have been taken in the Bombay Presidency—in 1872, 1881, and 1891. A previous census (in 1862) included the city only. “The census of 1872 showed the population to be 16,308,343. A period of 9 years elapsed before the second census was taken. This period was marked by the appearance of famine, more or less severe in several parts of this Presidency in the years 1877 and 1878. The second census was taken soon after the bad years, and the population was enumerated at 16,489,274, showing an increase of 180,931. From 1881 to 1891 the Presidency enjoyed fairly good years, and the census taken in February, 1891, showed the population to be 18,901,128, giving an increase of 2,411,849 in 10 years. Taking the whole period of 19 years, the increase in the population amounts to 2,592,780.” In the city of Bombay the rate of increase of population in 19 years was 275·22 per mille; in the entire Presidency 158·98. Between 1872 and 1881, in consequence of scarcity and its consequences, the increase of population was trifling.

LEPROSY IN BRITTANY.

WE learn from the *Boston Medical and Surgical Journal*, that Dr. Zambaco Pasha, suspecting that “Morvan's Disease” was really true leprosy, visited Brittany to investigate the question, and especially to see Dr. Morvan's patients. The result has been to confirm his opinion that most of the cases described as syringo-myelia and Morvan's disease are cases of leprosy, which in former times was prevalent in Brittany. He found among the population a considerable number of persons whose hands were deformed and mutilated as in cases of leprosy. In several persons ulcerated and anaesthetic patches were observed on the legs. Cases of undoubted tubercular leprosy were found, with the characteristic leonine aspect, as well as the well-known pigmentary changes.

SANITARY AND METEOROLOGICAL NOTES.

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VITAL STATISTICS

For four Weeks ending Saturday, December 2, 1893.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

TOWNS	Weeks ending				TOWNS	Weeks ending			
	Nov. 11	Nov. 18	Nov. 25	Dec. 2		Nov. 11	Nov. 18	Nov. 25	Dec. 2
Armagh -	14·0	21·0	21·0	14·0	Limerick -	21·1	25·3	28·1	29·5
Belfast -	29·1	28·1	26·6	31·5	Lisburn -	17·0	12·8	25·7	25·7
Cork -	24·2	24·9	25·6	38·8	Londonderry	20·4	29·8	22·0	25·1
Drogheda	30·7	22·0	30·7	43·9	Lurgan -	13·7	36·5	9·1	22·8
Dublin -	25·7	26·8	27·9	26·5	Newry -	16·1	24·1	24·1	8·1
Dundalk -	8·4	4·2	41·9	16·8	Sligo -	10·2	20·3	15·2	10·2
Galway -	34·0	30·2	22·7	22·7	Waterford -	30·0	42·5	55·0	35·0
Kilkenny	28·3	37·8	23·6	51·9	Wexford -	18·1	13·5	49·7	40·6

In the week ending Saturday, November 11, 1893, the mortality in thirty-three large English towns, including London (in which the rate was 21·4), was equal to an average annual death-rate of 21·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·3 per 1,000. In Glasgow the rate was 22·8, and in Edinburgh it was 20·4.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 25·5 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·0 per 1,000, the rates varying from 0·0 in eight of the districts to 7·0 in Armagh—the 2 deaths from all causes registered in that district comprising 1 from measles. Among the 148 deaths from all causes registered in Belfast are 11 from measles, 3 from

scarlatina, 2 from diphtheria, 1 from simple continued fever, 1 from enteric fever, and 5 from diarrhoea. Among the 15 deaths in Limerick are 3 from measles, and the 18 deaths in Londonderry comprise 1 from measles and 1 from diphtheria. The Registrar of St. Mary's District, Drogheda, remarks: "Epidemic influenza is very prevalent amongst the old and poor."

In the Dublin Registration District the registered births amounted to 185—71 boys and 114 girls; and the registered deaths to 179—91 males and 88 females.

The deaths, which are 2 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 26.7 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 25.7 per 1,000. During the first forty-five weeks of the current year the death-rate averaged 26.5, and was 0.9 under the mean rate in the corresponding period of the ten years 1883–1892.

The number of deaths from zymotic diseases registered was 26, being equal to the average for the corresponding week of the last ten years, but 9 under the number for the week ended November 4. The 26 deaths comprise 2 from scarlet fever (scarlatina), 8 from whooping-cough, 4 from enteric fever, 5 from diarrhoea, and 1 from erysipelas.

There has been a further decline in the number of cases of enteric fever admitted to hospital, the number being 17, against 23 for each of the two weeks preceding, and 34 for the week ended October 21. Thirty-three enteric fever patients were discharged, 2 died, and 158 remained under treatment in hospital on Saturday, being 18 under the number in hospital on Saturday, November 4.

Thirteen cases of scarlatina were admitted to hospital, being 1 over the admissions for the preceding week: 7 patients were discharged, and 75 remained under treatment on Saturday, being 6 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 9 cases of measles (against 6 for the preceding week). Twenty-six cases of the disease remained under treatment on Saturday, being equal to the number in hospital on Saturday, November 4.

Deaths from diseases of the respiratory system, which had risen from 21 for the week ended October 28 to 30 for the following week, further rose to 41, or 5 over the average for the corresponding week of the last ten years. The 41 deaths comprise 22 from bronchitis and 12 from pneumonia or inflammation of the lungs.

In the week ending Saturday, November 18, the mortality in thirty-three large English towns, including London (in which the rate was 24.4),

was equal to an average annual death-rate of 24·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 24·3 per 1,000. In Glasgow the rate was 23·6, and in Edinburgh it was 27·2.

The average annual death-rate in the sixteen principal town districts of Ireland was 26·9 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·9 per 1,000, the rates varying from 0·0 in seven of the districts to 5·0 in Waterford—the 17 deaths from all causes registered in that district comprising 1 from scarlatina and 1 from diarrhoea. Among the 143 deaths from all causes registered in Belfast are 6 from measles, 1 from scarlatina, 3 from whooping-cough, 2 from diphtheria, 7 from enteric fever, and 2 from diarrhoea. The 36 deaths in Cork comprise 1 from enteric fever and 2 from diarrhoea. Among the 18 deaths in Limerick are 1 from measles and 2 from diarrhoea. The 19 deaths in Londonderry comprise 3 from diphtheria.

In the Dublin Registration District the registered births amounted to 209—98 boys and 111 girls; and the registered deaths to 185—83 males and 102 females.

The deaths, which are equal to the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·6 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 26·8 per 1,000. During the first forty-six weeks of the current year the death-rate averaged 26·6, and was 0·8 under the mean rate in the corresponding period of the ten years 1883-1892.

The number of deaths from zymotic diseases registered was 21, being equal to the average for the corresponding week of the last ten years, but 5 under the number for the week ended November 11, and 14 under that for the week ended November 4. The 21 deaths comprise 2 from measles, 1 from influenza, 6 (5 of which occurred in Kingstown) from whooping-cough, 2 from diphtheria, 3 from enteric fever, 3 from diarrhoea, and 1 from erysipelas.

Twenty-three cases of enteric fever were admitted to hospital, being 6 over the admissions for the preceding week and equal to the number for the week ended November 4. Thirty-four enteric fever patients were discharged, 1 died, and 146 remained under treatment on Saturday, being 12 under the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 12, being 1 under the admissions for the preceding week: 6 patients were discharged, and 81 remained under treatment on Saturday, being 6 over the number in hospital on Saturday, November 11.

The hospital admissions for the week included, also, 17 cases of measles (against 9 for the preceding week), and 1 case of typhus—35 cases of the

former and 1 of the latter disease remained under treatment in hospital on Saturday.

Forty-two deaths from diseases of the respiratory system were registered, being 2 in excess of the average for the corresponding week of the last ten years, and 1 over the number for the week ended November 11. They comprise 31 from bronchitis, 5 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, November 25, the mortality in thirty-three large English towns, including London (in which the rate was 26·5), was equal to an average annual death-rate of 26·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 25·4 per 1,000. In Glasgow the rate was 25·8, and in Edinburgh it was 28·7.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 27·6 per 1,000 of the population, based on the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·6 per 1,000, the rates varying from 0·0 in nine of the districts to 9·4 in Kilkenny—the 5 deaths from all causes registered in that district comprising 1 from measles and 1 from diarrhoea. Among the 135 deaths from all causes registered in Belfast are 11 from measles, 4 from whooping-cough, 1 from enteric fever, and 4 from diarrhoea. The 37 deaths in Cork comprise 1 from whooping-cough and 1 from enteric fever. The 14 deaths in Londonderry comprise 2 from diphtheria.

In the Dublin Registration District the registered births amounted to 181—88 boys and 93 girls; and the registered deaths to 192—90 males and 102 females.

The deaths, which are 6 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 28·6 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 27·9 per 1,000. During the first forty-seven weeks of the current year the death-rate averaged 26·6, and was 0·9 under the mean rate in the corresponding period of the ten years 1888–1892.

Twenty-nine deaths from zymotic diseases were registered, being 6 in excess of the average for the corresponding week of the last ten years, and 8 over the number for the week ended November 18. They comprise 4 from measles, 1 from typhus, 2 from influenza, 5 from whooping-cough, 1 from diphtheria, 5 from enteric fever, 2 from diarrhoea, and 4 from erysipelas.

Twenty-five cases of enteric fever were admitted to hospital against 23 admissions in the preceding week: 88 enteric fever patients were discharged, 2 died, and 131 remained under treatment on Saturday, being 15 under the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 11, being one under the admissions for the week ended November 18. Eleven patients were discharged, and 81 remained under treatment on Saturday, being equal to the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 20 cases of measles (being 3 over the number of cases of that disease admitted during the preceding week), and 4 of typhus: 46 cases of measles and 4 of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 43, being 1 over the number for the preceding week, and 3 over the average for the 47th week of the last ten years. The 43 deaths comprise 28 from bronchitis and 8 from pneumonia or inflammation of the lungs.

In the week ending Saturday, December 2, the mortality in thirty-three large English towns, including London (in which the rate was 27·1), was equal to an average annual death-rate of 26·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 27·8 per 1,000. In Glasgow the rate was 27·9, and in Edinburgh it was 31·5.

The average annual death-rate in the sixteen principal town districts of Ireland was 29·2 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·6 per 1,000, the rates varying from 0·0 in eight of the districts to 4·6 in Lurgan—the 5 deaths from all causes registered in that district comprising 1 from diarrhoea. Among the 160 deaths from all causes registered in Belfast are 8 from measles, 1 from scarlatina, 2 from whooping-cough, 2 from diphtheria, 3 from enteric fever, and 3 from diarrhoea. The 21 deaths in Limerick comprise 3 from measles. The Assistant Registrar of Cork No. 5 District remarks: "Measles, mumps, and influenza very prevalent in this District."

In the Dublin Registration District the registered births amounted to 178—105 boys and 73 girls; and the registered deaths to 182—98 males and 84 females.

The deaths, which are 8 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·1 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 26·5 per 1,000. During the forty-eight weeks of the current year the death-rate averaged 26·6, and was 0·9 under the mean rate in the corresponding period of the ten years 1883–1892.

The number of deaths from zymotic diseases registered was 18, being 11 under the number for the preceding week and 5 below the average for

the 48th week of the last ten years. The 18 deaths comprise 4 from measles, 5 from whooping-cough, 7 from enteric fever, and 1 from diarrhoea.

The number of cases of enteric fever admitted to hospital was 18, being a decline of 7 as compared with the admissions for the preceding week: 30 enteric fever patients were discharged, 1 patient died, and 118 remained under treatment on Saturday, being 13 over the number in hospital on Saturday, November 25.

Sixteen cases of scarlatina were admitted to hospital against 11 admissions for the preceding week: 7 patients were discharged, and 90 remained under treatment on Saturday last, being 9 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 10 cases of measles (being 10 under the number for the preceding week), and 1 case of typhus. Forty-five cases of measles and 4 of typhus remained under treatment in hospital on Saturday.

Fifty-one deaths from diseases of the respiratory system were registered, being 4 in excess of the average for the corresponding week of the last ten years, and 8 over the number for the week ended November 25. They comprise 35 from bronchitis and 14 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of November, 1893.

Mean Height of Barometer,	-	-	-	30.058 inches.
Maximal Height of Barometer (on 21st, at noon),	-	-	30.594	„
Minimal Height of Barometer (on 16th, at midnight),	-	28.719	„	„
Mean Dry-bulb Temperature,	-	-	-	43.3°.
Mean Wet-bulb Temperature,	-	-	-	41.0°.
Mean Dew-point Temperature,	-	-	-	38.1°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	.234 inch.
Mean Humidity,	-	-	-	82.7 per cent.
Highest Temperature in Shade (on 3rd),	-	-	-	57.6°.
Lowest Temperature in Shade (on 7th),	-	-	-	30.8°.
Lowest Temperature on Grass (Radiation) (on 7th)	-	-	-	23.9°.
Mean Amount of Cloud,	-	-	-	73.2 per cent.
Rainfall (on 17 days),	-	-	-	1.870 inches.
Greatest Daily Rainfall (on 16th),	-	-	-	.821 inch.
General Directions of Wind	-	-	-	N.W., N. & N.E.

Remarks.

This was a generally favourable month. Its leading characteristics were—a prevalence of northerly winds, a tolerably low mean temperature, an absence of calm and fog, a moderate rainfall, but a high percentage of cloud.

The memorable storm of the period from the 16th to the 19th inclusive deserves special mention. The cyclonic depression which caused it was of great intensity, the barometer falling in its centre to about 28·5 inches on the morning of the 17th, and the system pursued a very erratic course, travelling in the first instance from S.S.W. to N.N.E., across Ireland and Scotland to the Moray Firth, and then "turning tail" and passing in a south-easterly direction down the east coast of Great Britain to the Continent, over which it finally dispersed. The wind-velocity during the northerly gales of this depression was great everywhere, but it was altogether exceptional at Holyhead, where the anemometer registered 1,824 miles of wind in 24 hours, and in the hour 10 30 a.m. to 11 30 a.m. 89 miles were recorded.

A slight shock of earthquake was felt at Greystones, Co. Wicklow, at 5 35 p.m. of the 2nd.

In Dublin the arithmetical mean temperature ($43\cdot8^{\circ}$) was decidedly below the average ($44\cdot7^{\circ}$); the mean dry bulb readings at 9 a.m. and 9 p.m. were $43\cdot3^{\circ}$. In the twenty-eight years ending with 1892, November was coldest in 1878 (M. T. = $38\cdot2^{\circ}$), and in 1870 (M. T. = $42\cdot2^{\circ}$), and warmest in 1881 (M. T. = $50\cdot3^{\circ}$). In 1886, the M. T. was as high as $46\cdot4^{\circ}$; in the year 1879 (the "cold year"), it was $43\cdot9^{\circ}$; in 1887, it was as low as $42\cdot6^{\circ}$; in 1888, it was as high as $47\cdot5^{\circ}$; in 1889, it was $46\cdot4^{\circ}$; in 1890, $45\cdot3^{\circ}$; in 1891, $43\cdot4^{\circ}$, and in 1892, as high as $46\cdot9^{\circ}$.

The mean height of the barometer was 30·058 inches, or 0·198 inch above the corrected average value for November—namely, 29·860 inches. The mercury rose to 30·594 inches at noon of the 21st, having fallen to 28·719 inches at midnight of the 16th. The observed range of atmospheric pressure was, therefore, 1·875 inches—that is, slightly less than one inch and nine-tenths.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was $43\cdot3^{\circ}$, or $5\cdot5^{\circ}$ below the value for October, and $11\cdot5^{\circ}$ below that for September, 1893. The arithmetical mean of the maximal and minimal readings was $43\cdot8^{\circ}$, compared with a twenty-five years' average of $44\cdot7^{\circ}$. On the 3rd, the thermometer in the screen rose to $57\cdot6^{\circ}$ —wind, W.S.W.; on the 7th the temperature fell to $30\cdot8^{\circ}$ —wind, calm. The minimum on the grass was $23\cdot9^{\circ}$, also on the 7th.

The rainfall was 1·870 inches, distributed over 17 days—the rainfall was considerably below, while the rainy days were exactly equal to,

the average. The average rainfall for November in the twenty-five years, 1865-89, inclusive, was 2·452 inches, and the average number of rainy days was 17·0. In 1876 the rainfall in November was large—3·614 inches on 20 days. In 1872, also 3·414 inches fell on 24 days; in 1887, 3·012 inches fell on 18 days; in 1888, 6·549 inches fell on 26 days; in 1890, 4·212 inches fell on no less than 27 days; in 1891, 2·911 inches fell on 15 days, and in 1892, 2·404 inches on 19 days. On the other hand, the rainfall in 1889 was only .929 inch on 9 days; in 1870, only 1·218 inches were measured on but 11 days; and in 1879 only 1·251 inches on but 10 days.

High winds were noted on 15 days, but attained the force of a gale on only four occasions—the 16th, 17th, 18th and 29th. The atmosphere was more or less foggy in Dublin on the 4th, 7th, 13th, 14th and 30th.

A lunar halo was seen on the 21st. Snow or sleet fell on the 6th, 18th, 19th, and 23rd; hail on the 6th, 7th, 19th, 22nd and 23rd.

With the coming of November, as in 1892, so in 1893, cold frosty weather gave place to comparative warmth and south-westerly winds. A severe frost had visited central England early on Tuesday evening, October 31, but in the course of the following night temperature rose with extreme rapidity, so that Parsonstown was 21° warmer at 8 a.m. on Wednesday, the 1st, than it had been 24 hours previously. On Thursday a secondary V-shaped depression crossed England from W. to E., causing a copious rainfall. Friday was a cloudy, mild, breezy day, but on Saturday a shift of wind to N. E. took place, and the air became drier and colder.

During the week ended Saturday, the 11th, showery, cloudy, and generally changeable weather, with north-easterly winds, prevailed. After Sunday an anticyclone was constantly found to the northwestward of the British Islands, while atmospherical pressure was relatively low both over the Baltic and over the Mediterranean Basin. At first areas of particularly sharp cold were found over the central districts of both England and Ireland—at 8 a.m. of Sunday the thermometer was as low as 22° at Loughborough and 25° at Cambridge and Parsonstown. At the first-named station it had been down to 19° during the previous night. In Dublin this day was fine, dry, and cold, but on Monday morning heavy showers of hail, sleet, and snow came up on a N.E. wind. In the neighbourhood of Stillorgan, Co. Dublin, some three inches of snow lay on the ground to an advanced hour in the forenoon. The frost continued inland, where also the weather remained dry. As usual in N.E. winds, the weather was most severe and broken in the extreme S.E. of England, where thunder and lightning accompanied sharp showers of cold rain and hail on Monday and Tuesday. After Wednesday temperature recovered, although the N.E. wind even freshened, and Saturday proved

the mildest day of the whole week. In Dublin the mean height of the barometer was 30.344 inches, pressure ranging from 29.961 inches at 9 a.m. of Sunday (wind, W.N.W.) to 30.465 inches at 9 a.m. of Wednesday (wind, N.N.E.). The corrected mean temperature was 42.8°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 42.3°. On Tuesday the minimum was 30.8°, on Saturday the maximum was 50.7°. Rain fell on five days in frequent but not heavy showers, the maximal fall in 24 hours being .049 inch on Wednesday, and the total fall amounting to .162 inch. Hail, sleet, and snow fell on Monday morning.

The weather during the week ended Saturday, the 18th, was at first anticyclonic, quiet, and fair, but it afterwards fell into a most unsettled stormy condition, severe gales from opposite quarters blowing on the last three days of the week. At the beginning an anticyclone lay over the British Islands, the North Sea, Holland, and North Germany—the barometer slightly exceeded 30.50 inches in the N.E. of Scotland. On Monday beautiful weather prevailed, but already a depression was advancing northwards across Spain and the Bay of Biscay. This system finally passed up the English Channel on Tuesday, and caused heavy rain both in France and in the S. and S.E. of England—.720 inch of rain fell in London, while Dublin got only .009 inch in the form of a drizzle on Tuesday evening. Wednesday proved fine and dry, but at night the wind veered from E. to S.E., and freshened in front of a very deep depression, which on Thursday night passed directly over Ireland, travelling in a north-north-easterly direction. This disturbance brought a heavy rainfall to the Irish and Scotch stations—.821 inch fell in Dublin up to 9 a.m. of Friday, the heaviest fall in this city since July 12, when .871 inch fell in two thunderstorms. About midnight on Thursday the barometer read 28.719 inches, the lowest reading recorded in Dublin since October 18, 1891, when the mercury fell to 28.251 inches. In front of the cyclonic centre a fresh S.E. gale and high temperature prevailed; in its rear came a violent N. storm and bitter cold on Saturday, when also the depression changed its course and travelled southwards down the North Sea. In Dublin the mean height of the barometer was 29.740 inches, pressure ranging between 30.382 inches at 9 a.m. of Sunday (wind, E.), and 28.719 inches at midnight of Thursday (wind, S.). The corrected mean temperature was 43.0°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 42.2°. On Friday the thermometers in the screen rose to 55.1°, having fallen to 34.4° on Tuesday. The rainfall amounted to .954 inch on three days—.821 inch being registered on Thursday. Snow showers fell on Saturday afternoon. The prevailing winds were E.S.E. and N.W. At Holyhead a gale from N. of hurricane force was reported on Saturday morning.

Changeable and unsettled weather held during the week ended Saturday, the 25th. At first, bitter northerly gales and showers of snow and

hail prevailed in connection with the deep depression which had travelled northwards and then southwards across the British Islands in the closing days of the previous week. As the centre of this disturbance reached the Continent on Sunday morning, the barometer rose with great rapidity over the United Kingdom, so that gradients for northerly winds became excessively steep. The result was a disastrous northerly gale, which strewed the coasts of North-western Europe with wrecks and wreckage. The rise of the barometer continued until Tuesday morning, when the reading was 30.63 inches at Belmullet. Depressions then began to pass eastwards over Northern Europe, with their secondaries spreading south-eastwards over the British Islands, where showers of hail, sleet, or snow again fell plentifully at exposed stations. During Friday and Saturday a deep depression passed more directly over our area, causing mild, damp, squally weather and a general fall of rain. The week closed with a finer and clearer state of the atmosphere. In Dublin the mean height of the barometer was 30.212 inches, pressure ranging from 30.594 inches at noon on Tuesday (wind, N.) to 29.457 inches at 9 p.m. of Saturday (wind, W.N.W.). The corrected mean temperature was 41.1°, which was also the value of the mean dry bulb readings at 9 a.m. and 9 p.m. On Thursday the screened thermometers fell to 31.7°, on Saturday they rose to 52.9°. Rain fell in registerable quantity on four days to the total amount of .214 inch, .162 inch being measured on Saturday. Snow and hail fell on Sunday and Thursday, hail on Wednesday also. The prevailing winds were N.E. and N.W.

The period from Sunday, the 26th, to Thursday, the 30th, inclusive, was chiefly remarkable for the sudden and extreme changes of temperature which occurred at its beginning and close. On the 26th, the thermometer stood low under the influence of a fresh northerly wind, forming part of the circulation round a depression whose centre had advanced from the N. of Scotland to Denmark by 8 a.m. Monday, the 27th, brought milder, damper weather and freshening westerly winds. The next two days were warm, but blustering, with a good deal of cloud, and squally W.S.W. winds. Rain fell at exposed stations, most heavily in Scotland. In the course of the night of the 29th-30th rain set in afresh, and the wind shifted to the northward, in the rear of a series of V-shaped depressions, which subsequently travelled towards S.E. across North-western Europe. A rapid fall of temperature followed, beginning in the far N., and quickly extending southwards. In Dublin the mean height of the barometer during this closing period of the month was 30.054 inches, pressure varying from 30.289 inches at 9 a.m. of Monday (wind, W.) to 29.829 inches at 9 p.m. of Thursday (wind, N.N.W.). The corrected mean temperature of the 5 days was 47.6°, the mean dry bulb temperature at 9 a.m. and 9 p.m. being 46.2°. On Sunday, the screened thermometer fell to 36.9°; on Tuesday it rose

to 56.5°. Rain fell on the 29th to the amount of .144 inch; on the 30th, to the amount of .143 inch; total precipitation, .287 inch. The prevalent winds were N.N.W. and W.S.W.

The rainfall in Dublin during the eleven months ending November 30th amounted to 18.011 inches on 155 days, compared with 15.378 inches on 141 days during the same period in 1887, 25.768 inches on 173 days in 1888, 25.718 inches on 178 days in 1889, 25.706 inches on 189 days in 1890, 24.521 inches on 163 days in 1891, 24.849 inches on 186 days in 1892, and a twenty-five years' average of 25.292 inches on 177.4 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in November, 1893, was 1.785 inches distributed over 17 days. Of this quantity .320 of an inch fell on the 17th, and .310 of an inch on the 30th.

From January 1st, 1893, up to November 30th, rain fell at Knockdolian, Greystones, on 150 days, and to the total amount of 19.586 inches.

At Cloneevin, Killiney, Co. Dublin, 1.40 inches of rain fell on 17 days, compared with an eight years' average of 3.048 inches on 18.25 days. The maximal fall in 24 hours was .81 inch on the 16th. Since January 1st, 1893, 16.01 inches of rain have fallen at this station, compared with an eight years' average of 23.401 inches.

THE USE OF TUBERCULIN.

KARL VON RUCK, M.D. (*Medical News*, Philadelphia, September 16th, 1893), reports the result of treatment in 90 cases of pulmonary tuberculosis treated at the Winyah Sanitorium at Asheville. "There were 53 per cent. of recoveries under tuberculin, against 14 per cent. without it, and the difference in the improved cases is also equally manifest. The average residence in the institution of patients taking tuberculin was 138 days, as against 189 days for patients that did not receive it."

DOCTORS IN CALIFORNIA.

THERE are 2,531 physicians in active practice in California to-day; of these 354 are homœopaths and 267 eclectics, leaving 1,910 regularly qualified physicians. This gives us about one doctor to every 530 inhabitants—quite enough. "The Register" shows that there are 143 illegal practitioners. To this number we could add about 1,000 quacks—men and women—who are in the "healing business." These are about equally divided into "spirit healers," Christian science doctors, faith-healers, magnetic and clairvoyant frauds, to say nothing of tape-worm "professors," "face-ironers," and "beauty" specialists.—*Medical Record*.

PERISCOPE.

NEW YORK MORTALITY.

THE number of deaths in the city during the quarter (Jan.-Mar., 1893) was 11,844, and the death-rate 25.37 lower than for three of the preceding four years. There were 3,958 marriages and 12,265 births. There were 342 more male children born than female children, but this preponderance is much more than offset by the greater number of deaths among male children. There were more than a thousand more deaths of males than of females. Less than one-third of the number of children born were born of native parents. Of the men to marry 486 were widowers, and of the women 411 were widows. The deaths of unmarried males exceeded the deaths of unmarried females by over a thousand. Over five hundred more married men died than married women, and over four hundred more widows than widowers.—*Medical Record*.

DOCTORS IN PARIS.

IT seems that while the Department of the Seine with which Paris is co-extensive, contains not quite a tenth of the total population of France, its inhabitants have to support a sixth of all the doctors in the country; in other terms, there is one doctor to every 1,100 Parisians, and in this calculation no account is made either of the unregistered physicians, who, though banned by the law, are numerous, nor of 1,787 of those useful persons whom the French call *sages femmes*, many of whom exercise, especially among the poor, the duties of general practitioners. In 1891, France had 12,324 doctors, and Paris 2,419, or a fifth, showing that the situation, bad enough then, is growing worse [?]. So, too, does the fact that from 1886 to 1891 the total number of doctors in France has increased by 324 and in Paris by 231; in other words, the Department of the Seine has absorbed three-fourths of the increase.—*Medical Record*.

SOLAR CAUTERY.

DR O. V. THAYER, of San Francisco, read a paper to the County Medical Society in April last on the application of concentrated solar rays in the treatment of skin diseases. Cases reported in the *Lancet* in which a surgeon had removed a wine-mark from a lady's face, and had destroyed a malignant growth by this means, attracted Dr. Thayer's attention; and he found the method most successful—at first for the removal of warts and moles, and later for the treatment of malignant formations. "There is a curative power in the chemical rays of the sun yet unexplained," he says. He gives details of a case in which he almost com-

pletely removed a most disfiguring stain from a young lady's face. Another case in which an India ink tattooing was obliterated must be given in Dr. Thayer's own words :—"Mr. B. and wife called for advice; the latter had upon the outside of the leg, below the knee, two large Roman letters, produced with India ink. I noticed that the husband was more than anxious for their removal. There was a little romance connected with this case, as I learned afterwards. The young lady while residing in a seafaring town, had a lover—a sailor boy. After their engagement he took the liberty to print upon her limb the initials of his name. As ever, true love rarely runs smoothly at all times, the lovers became estranged, and the present husband became her Benedick. These large beautiful Roman letters, seen upon the limb of his wife, were a constant reminder that he was not her first love. The solar cautery was brought to bear, however, upon these ghostly letters, as he conceived them, and they were soon obliterated, leaving no trace of their former self."

ON A CERTAIN LACK OF HUMOUR IN PHYSICIANS.

REMARKING, with much despondency of heart, that physicians, as well as "the vulgar herd," like to handle secret proprietary remedies and believe in outrageous claims and certificates of impossible cures, a humorist spent considerable money in advertising in "reputable medical journals" a series of preparations, trade-marked and patented, of the most astonishing qualities and powers. Certificates from pompous magnates, with titles of surpassing length as tails to their names, were appended; and the whole affair was set forth with the customary effrontery in the remarkable scientific jargon of the professional advertisement-writer. The actual advertisements are before us as we write. For the anti-vaccinationists and the aristocratic, "Jennerine" possessed a charm; it was of spontaneous production in a blooded cow of long pedigree, but for many generations had been carried through the human royal family of England, acquiring thereby great intensity and nobility. Transmission of the virus and inoculation could also be effected by telegraph "over many miles of wire." Of "Pasteurine," the universal microbicide, the formula was published, though the name was trademarked, and "other dealers are warned, &c." And this is the formula: Nitrogen, one volume. Carbonic acid gas, pure anhydrous, two volumes. Permanganate of potash, two parts by weight. Pure oxygen, without admixture, one volume. Pure carbon in crystalline form, one part by weight. "Consumptive" was guaranteed a sure cure for consumption. As regards Croupine, the physician required especial teaching and drilling in its application, to prevent the digestion of the membrane of the patient's throat while being swallowed. Its price was \$7.50 per ounce, "very reasonable in consideration of the results obtained."

"Dyspepsine" and "Cancerine" were guaranteed of absolutely unfailing power. "Ostrichine" enabled one to eat mince pie and railroad sandwiches with impunity. ("We raise our own ostriches.") "Brainerine" needed only its name to recommend it. "Brains are scarce just now," says the advertisement, "and for this reason our supply, for a few years, will be limited. Physicians requiring this article for their personal needs or those of their patients, will please apply with subscription at once." And now for the promised proof of professional lack of humor: To the address of the "Nineteenth Century Therapeutic Company," from every part of the United States, came thousands of serious letters from physicians—literally thousands—requesting samples, ordering supplies, and making inquiries as to the applicability of these remedies to ailments described in detail!—*Medical News*, Philadelphia.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

"Bi-palatinoids" of Pure Ferrous Carbonate.

Through the courtesy of Messrs. Oppenheimer, Son, and Company, London, we have been afforded an opportunity of testing the therapeutic value of these ingeniously-contrived capsules in hospital practice, and we are more than satisfied with the result.

The "bi-palatinoid" is composed of two concave gelatine discs, joined at their edges but separated from each other by a gelatinous septum. In one of the discs sodium carbonate is placed; in the other, ferrous sulphate. These two salts are thus kept apart until the action of fluid or the gastric juice causes the "bi-palatinoid" to swell up and release its contents, when the two salts unite and produce ferrous carbonate in the nascent state.

A girl, so extremely anaemic as to become breathless on the slightest exertion, with a loud *bruit de diable* in the right internal jugular vein and a well-marked systolic murmur, best heard in the pulmonary area, began, on October 12, 1893, to take six "bi-palatinoids" daily. She had taken 138 up to November 3, when her identity was with difficulty recognisable. Her extreme pallor and puffy eyelids had given place to a rosy blush without a trace of oedema, and her strength had greatly increased.

In the *Medical Annual* for 1893 (page 570), three consecutive cases of simple anaemia are recorded, in which a rapid improvement similarly followed the administration of iron in this manner: an accompanying coloured plate shows the very remarkable percentage increase in the haemoglobin which attended the treatment.

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

FEBRUARY 1, 1894.

PART I.

ORIGINAL COMMUNICATIONS.

ART. III.—*Operative Treatment of such Herniae as appear the Result of Congenital Defect of the Linea Alba, or as the Outcome Laparotomy.** By J. S. M'ARDLE, F.R.C.S.I.; Surgeon to St. Vincent's Hospital, Dublin.

THE question which I desire to elicit your opinion upon, is one of great moment, not alone for the specialist, but also for workers in every department of surgery—I allude to the operative treatment of such herniae as appear as a result of congenital defects in the linea alba, or as the outcome of laparotomy. The cases which I shall bring under your notice illustrate the course followed by both varieties prior to and after operation.

Case showing the result of Neglected Fatty Hernia from Sub-peritoneal Tissue (Lücke).

Mrs. H., aged fifty-one, came under my care on the 12th of January, 1890. For many years she had noticed a small nodule under the skin, a little above the umbilicus. Suddenly, during the lifting of a weight, she felt something giving way in the abdomen, and soon after was obliged to lie down owing to abdominal pain. On examining the neighbourhood of the original nodule, she found a swelling the size of a small orange. This soon lessened in bulk, but recurring enlargements took place, until distressed by continual protrusion she sought surgical advice, and was placed under my care, when I found a rounded tumour, dull on percussion, irregular in outline, and not reducible. Diagnosing omental hernia, I

* Read before the Obstetrical Section of the Royal Academy of Medicine in Ireland, on Friday, November 24, 1893. [For the discussion on this paper, see page 166.]

proceeded to lay open the sac after the manner I shall detail hereafter, and found not only a large omental hernia, as depicted in Fig. 1, but also a knuckle of small intestine. Replacing the loop of gut, I applied 8 or 10 fine silk ligatures to the root of the omental protrusion, placed a flat sponge underneath it, and removed a great mass of extremely dark-coloured and almost gangrenous omentum. I need not detail the remaining steps of the operation, suffice it to say the patient made an excellent recovery, all the unburied sutures being removed on the eighth day.

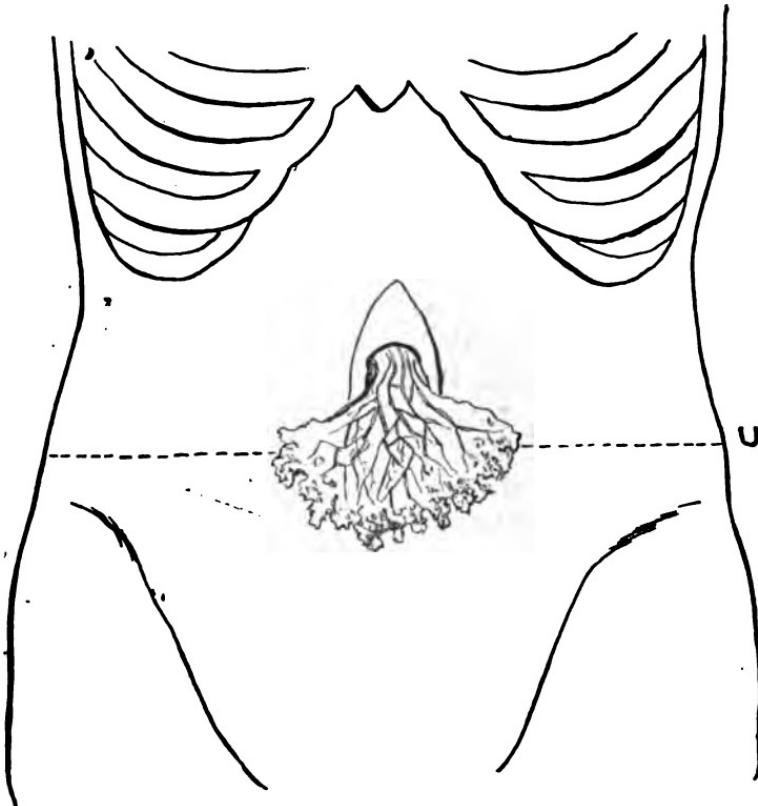


Fig. 1.

In this case I have no doubt but that removal of the primary fatty nodule which I found adherent to the outer side of the protruded sac, would have prevented the development of the dangerous condition which preceded operation, especially if the small opening had been closed by a buried suture or by silk-worm gut suture passed through the skin, and deeply through the revivified aponeurotic border of the ring.

Case of Enormous Umbilical Hernia with Strangulated Gut and almost Gangrenous Omentum.

Helen E. was admitted into St. Vincent's Hospital on the 8th of March, 1891, in great distress owing to a very large umbilical hernia which could be only partially reduced, and therefore no truss could be worn at the time of admission. The tumour was as large as a foetal head, and presented as in Fig. 2. As no time was to be lost, owing to symptoms of strangulation being present, I incised the skin on the left side along

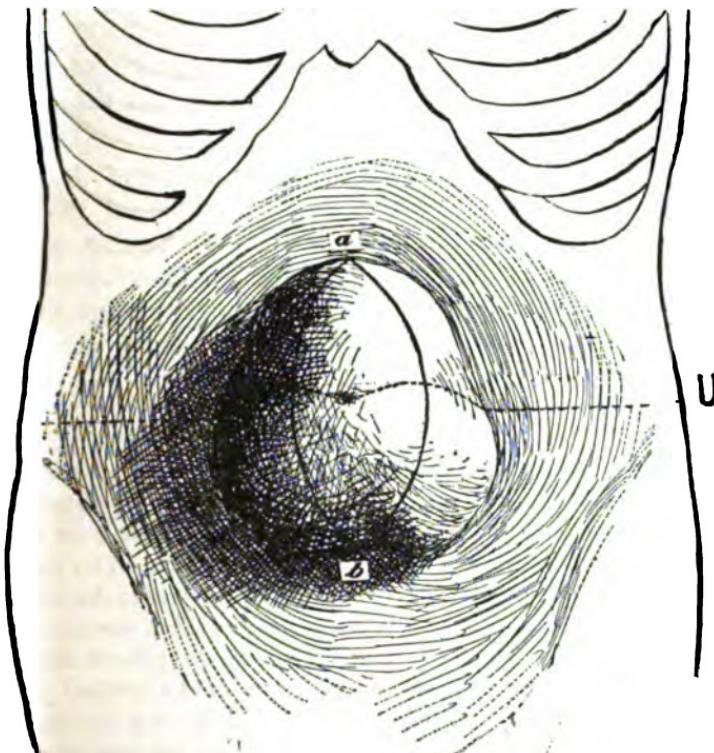


Fig. 2.

the line A B, and reaching neck of sac, cleared it for a short distance, then with strong, long-handled scissors I cut clean through the tissues up and down to the ends of the skin incision. Checking haemorrhage, which was sharp, with clip forceps, I divided the skin and all the tissues on the right side quickly with the scissors, thus freeing the entire neck. Opening the sac on the left side I found numerous firm adhesions of the omentum thereto. I did not delay to break these down or double ligature

them, but unfolding the membrane as in Fig. 1, we came upon an almost gangrenous piece of intestine of considerable size. This was adherent to the sac and the omentum, and was irreducible. Most of the adhesions broke down under sponge pressure, and a slight section of the ring outside the sac allowed stretching of the neck and return of the bowel. Three circumstances induced me in this case to remove the omentum—1st. The numerous adhesions would require more ligaturing than the stump. 2nd. The abdomen was already as full as it could well be. 3rd. The protruded mass looked in a state of low inflammation. Applying multiple ligatures I resected the omentum, as in the last case, and dropped it into the abdomen and completed the operation.

The case did well, temperature never going above 99·4°. On the 13th day, she left the hospital perfectly well, and since that time she has remained in perfect health.

Here prompt operation averted imminent danger of death, and the removal of a great mass of omentum lessened the intra-abdominal tension, while clearing the edges of the ring, applying a purse-string suture to the neck of sac, an interrupted suture to the aponeurosis, and deep supporting sutures through the skin, fat, and abdominal fasciæ, resulted in a permanent cure of this formidable trouble.

Case of Ventral Hernia following Laparotomy.

B. M^G., aged twenty-seven, was sent to me from Louth, labelled urgent. I must say I never saw any urgency about the case, and the details given by the patient as to the origin of her trouble only proved how little we laparotomists are appreciated by the ordinary public. The man who evulses a toe-nail, or passes a Eustachian probe, is a genius in the estimation of the ordinary run of observers, while if we safely guide a case through the dangerous stages of a prolonged laparotomy, and the patient afterwards gets a curable though enormous hernia, all the credit of a brilliant performance vanishes, and she calmly tells us, or more likely some one else, "The operation ruined me." You know the value to set on such statements; so do I. This was such a case, and I approached it with some concern, especially as Doctors Horne, Smith, and myself concluded that a hydrops peritonei was present, and that the patient was not over-vigorous.

I operated in this case on Nov. 14, 1893, assisted by Dr. Smith. Reaching the neck of the sac at one point, I attempted to follow it round as in Cases I. and II. I failed to do this owing to a sacculation, as shown in Fig. 3, and was, therefore, obliged to dissect out each sac separately. After examining the interior of the sac I passed a purse-string suture round its neck, and tied it firmly; section of the sac half an inch above this suture was rapidly carried out. While this was being done Dr. Smith

held sponges firmly against the cavities from which I had removed the sacculi. I now passed six silk sutures through the firm and freshened aponeurotic ring, as in Fig 5, drawing the edges well over the fulness produced by the purse-string suture of the peritoneum. These were cut short, and I applied myself to checking bleeding from the subcutaneous tissues. Owing to their great vascularity—oozing being copious and

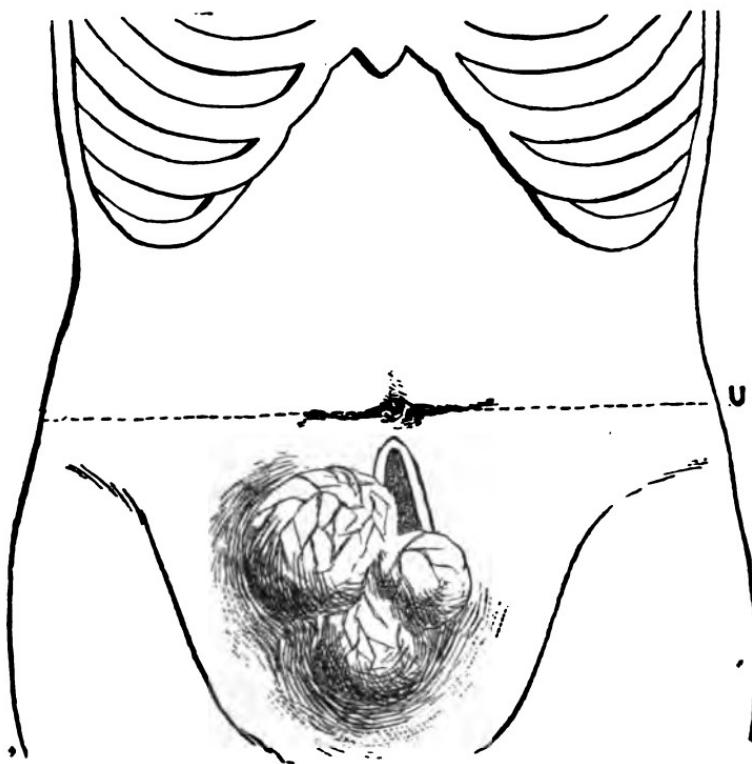


Fig. 3.

continuous—I was obliged to pass a double thread from the extreme limit of the dissection on one side, and bring it along under the tissues of the floor of the incision and out on the opposite side, so that when I tied down a pledget of gauze on each side the entire centre of the cavity from which I removed the hernial sac was obliterated. This deep supporting suture and the skin sutures, applied as I shall hereafter describe, effectively checked the haemorrhage and completed the operation. A very free discharge of clear serum, amounting to more than half a gallon, took place from the peritoneum when the sac was opened.

The temperature chart of this case is before you, and the notes from day to day. The first dressing was removed on eighth day, and was found perfectly dry, the wound being firmly healed. Of course as yet this cannot be counted a cure; it is but a first step in that direction.

I must ask your forgiveness for detailing this case at such length, but the plate which I present to you is an accurate drawing of the state of things found on dissecting out the sac, part of which I have shown to the Academy. My colleague, Dr. Smith, and Dr. M'Loughlin, of Boston, can vouch for their accuracy as well as for the description of the operation as given above.

Now my reading of this case may throw light on the causation of an affection which unfortunately follows operations carried out with great care, and conducted by most competent hands. There are some who would relegate such cases to a museum for surgical impossibilities. They would have us believe that the occurrence of hernia after section of the abdominal wall is fitting recompense for the imperfect application of antiseptic principles. To my mind we can trace to one cause the occurrence of hernia in these cases. In the hernia following the projection of subperitoneal fat the middle stratum of the abdominal wall was weakened by the hypertrophy of the fatty tissue, which found its way through at the point of perforation of a small vessel. In the umbilical hernia there never was a complete closure of the middle stratum, while in the last case the accompanying plates show that the middle stratum alone was deficient. The peritoneum was firm along the line of section, so was the skin. The aponeurosis had been drawn aside owing to the action of the abdominal muscles, and was found not closely encircling the neck of the sac, but fully one and a half inches on the left, and two inches on the right from that structure, while above and below the protrusion dense fibroid tissue marked the line of repair.

I do not blind myself to the fact that this patient developed a hydrops peritonei, and that this trouble may have acted as a determining cause in this case; but no amount of dropsy could overcome the resistance of the tissues where the three layers of the abdominal wall are united.

This want of union of the mid-stratum, made up of the elastic fascia of Scarpa and the aponeurosis—formed by the fusion of the tendons of the external oblique, internal oblique, and transversalis—was the only pathological condition present in all these cases. I

am satisfied we know the explanation in Nos. 1 and 2. I shall now endeavour to explain its occurrence in No. 3, and propose a remedy.

There is a disposition to complete operations on the abdomen by passing a row of deep sutures embracing the entire thickness of the abdominal wall, and intermediate superficial sutures usually securing skin only.

(a) How often do we in passing the deep sutures revert to the fact, that there is a great tendency to retraction on the part of the essential constituents of a sound abdominal wall. My notion is that many cases depend for complete restoration of the abdominal wall on contraction of a very extensive cicatrical deposit between the widely separated lips of the aponeurotic opening. The failure of one or two sutures to engage a considerable mass of the mid-stratum of the abdominal wall would account for many of the protrusions which follow laparotomy.

(b) In the conduct of abdominal section there is a tendency to use ordinary catch forceps for the support of the peritoneum. I have noticed that many of these bite very hard, and seriously reduce the vitality of tissues subjected to such vigorous pressure. The parts supported by the forceps are drawn at times well up between the layers of the abdominal wall, and fixed there by the sutures. During repair these points become the seat of vigorous tissue change, with the object of remedying the ill effects of over-pressure; if lymph accumulates it must separate the tissues, and as the

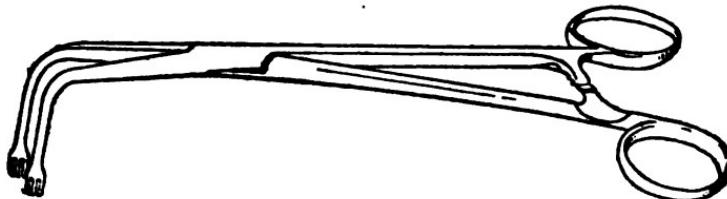


Fig. 4.

peritoneum unites rapidly behind the effusion the fluid presses forward and separates those layers which are slow of healing, the aponeurosis being last of all to firmly unite, the tendency is to thus cause a faulty union. To avoid this I have used the forceps represented in Fig. 4; they are so bent that they lie flat on the abdomen, and do not interfere with the further steps of the operation.

(c) Occasionally, too, unless all the layers of the abdomen are drawn together, a haemorrhage occurs during reaction, the skin-wound is closed accurately, exudation has glued the peritoneal surfaces together, and the blood remains between the layers of muscle or aponeurosis, as the case may be, preventing early union, and any vigorous effort causes rupture.

(d) Again, low vitality permits lymph exudation to break down, or possibly direct infection sets up a circumscribed suppuration. This prevents the edges of the mid-stratum uniting, and hernia follows.

There are thus many causes of want of union of this essential layer of the abdominal wall, and I would place them in order of importance—

1. Failure to engage the different layers of this stratum sufficiently in the sutures.
2. Interposition of contused peritoneum.
3. Haematoma not becoming soundly organised.
4. Suppuration from inherent or extrinsic causes.

The remedy for this is to suture the abdomen in all laparotomies as we do for hernias, to obliterate all cavities in which

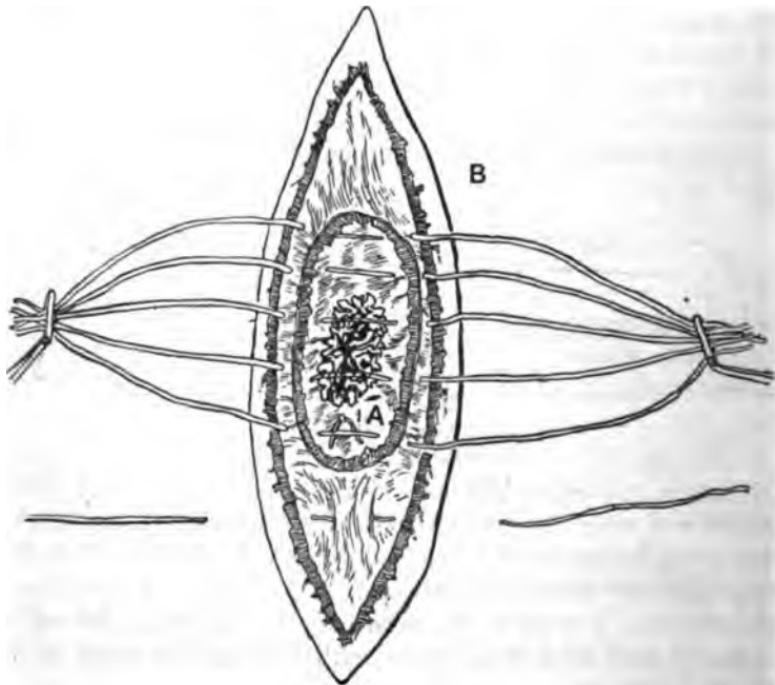


Fig. 5.

blood or serum could collect, and to avoid contusing the peritoneum by using catch forceps, such as I suggest, with sharp points.

The steps of the operation, as I believe it should be conducted, are—Incision of skin on one side, as in Fig. 1; isolation of the neck of the sac along this side, then undermining not only the skin, but all the tissues on the other side of the neck, making it possible to cut cleanly through everything down to the neck of the sac with strong scissors with long handles. This done, and being satisfied by opening the sac that no omentum or bowel remains in it, a Hagedorn's needle is carried round in the sub-peritoneal tissue, like a purse-string, as in Fig. 5 A. This being drawn and tied, numerous sutures carried with the same needle through the aponeurosis, as at Fig. 5 B, close the wound over the mouth of the purse after cutting away the sac a quarter of an inch or so above that ligature.

Skin sutures passing deeply, and taking up the floor of the wound, are now applied and knotted, and the operation thus completed. The needles and holder (Pozzi's) required for this are

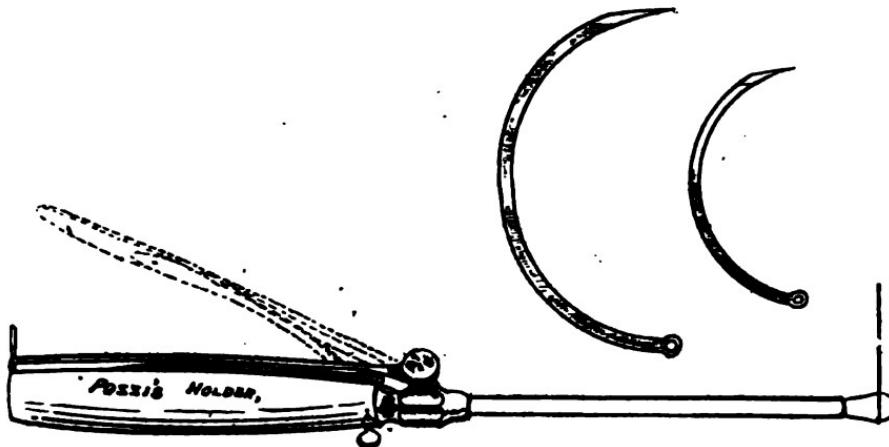


Fig. 6.

represented in Fig. 6. After opening the sac to examine its interior, a sponge, or a holder is held in the mouth of the sac to prevent protrusion of the intestines.

If apology be needed for bringing this subject before you, I think the following extracts are ample proof of the neglect of this operation :—

Macready ("A Treatise on Ruptures," 1893).—The operation consists in exposing the tumour, dividing it carefully to see whether it contains a peritoneal sac, and, if so, dealing with the sac either by excision or Macewen's method.

Keen and White ("American Text-book of Surgery," 1893). The radical cure of umbilical hernia is seldom undertaken because of the unsuitability of the subject of it for operation. Should an operation be performed, it should be done, if possible, "without opening the sac." *This book recommends a drainage tube to be left in—Where?*

Treves' "Operative Surgery" concludes a very accurate description of the operation by saying, and rightly so, that no drainage tube is required; but, even in his description there is one defect, and it is the instruction to excise the whole sac down to the aponeurosis. Now, if he means to apply this to hernias of recent origin, whether umbilical or in the linea alba after laparotomy, he will sooner or later meet with serious mishaps; for the moment you cut the neck of a recent hernial sac, retraction of the peritoneum takes place, and leaves a patch of the anterior abdominal wall devoid of serous covering, and this, we all know, is not a condition to be eagerly sought after. In these cases suturing, as in laparotomy, is not sufficient. Apposition of the different layers of the abdominal wall is necessary.

How soon books are out of date! The great Encyclopædia of Ashhurst contains only the elaborate details of Woods' *subcutaneous wire suture*. Now, the specimen which I here exhibit should be a warning to those who still cling to the ancient methods of blind surgery. This bottle contains the result of two operations carried out by a distinguished surgeon for the relief of hernia by the subcutaneous wire suture. In both attempts the wire only engaged the anterior wall of the sac and so protrusion of the gut took place behind them. Their complete removal by the open operation, and with them the sac of an almost gangrenous hernia has removed a serious danger which was in the case always present, as, owing to the presence of the wires, no truss could be worn.

The patient to this day is not aware of the danger to which blind surgery exposed him. The operator is more than thankful for the clean sweep which I had the pleasure of making of his handiwork.

ART. IV.—Colectomy for Adhesion of Cæcum to old Ovarian Pedicle and Tubercular Appendix.* By ALFRED J. SMITH, M.B.; Ex-Assistant Master, Rotunda Lying-in Hospital; Examiner in Midwifery, Royal University; Professor of Midwifery, C.U.I.; Gynæcologist, St. Vincent's Hospital; Fellow, British Gynæcological Society.

I ASK your indulgence whilst I read for you notes of what was to me an extremely interesting case, in the hope that it may present some points for discussion and of interest to the members of this Section of the Royal Academy of Medicine.

CASE.—A young married woman, named Mrs. G., aged twenty-four, was sent up from Westport to my gynæcological wards in St. Vincent's Hospital towards the end of September, 1892. She had been then married four years, and had three children, each at full term and healthy. About a month after the first confinement she complained of pain in the right inguinal region, referred to a point midway between the umbilicus and the anterior superior spine of the ilium. Her local physician exhausted all the usual remedies for obtaining relief—such as poultices, blisters, sedatives, hot hip-baths, &c.—without any permanent benefit; the pain for the twelve months before her admission became so intense that she was unable to perform her household duties, and she had to take to her bed as an invalid. She suffered also from heavy floodings during her menstrual period, the duration being about 10 days, with a gradually-diminishing interval between the periods.

Examination.—External genitals normal in development, vagina normal, uterus anteflexed and displaced towards the left, movable, not tender on pressure; length, 7·5 cm. The right broad ligament contained a Fallopian tube, slightly tender on pressure, and it could be easily felt as a tolerably firm cord. The right ovary felt very large—the size of a billiard ball—and was exquisitely tender on pressure, the patient calling out and attempting to jump off the couch each time the ovary was pressed. The left ovary and tube felt normal; no tenderness. I determined to operate, and placed the patient on Trendelenburg's table and made a two-inch incision; the diseased right ovary came easily into view. This I removed along with the Fallopian tube quite close to the uterus, using strong silk and transfixing the pedicle. The left ovary was examined; it looked and felt normal, and so was preserved. The right ovary was examined by Dr. Patteson, who described it as being

* Read before the Obstetrical Section of the Royal Academy of Medicine in Ireland, on Friday, December 28, 1898.

distended by a great number of small retentive cysts. In fact the ovary was a specimen of *Hydrops follicularum*—I showed it at this Section of the Academy—and it is preserved in the museum of the Royal University—a line drawing of which is here shown (Fig. 1). Her recovery from the



Fig. 1.—Line drawing of ovary preserved in Museum of Royal University, showing the cystic cavities.

operation was rapid and uninterrupted; the temperature and pulse never exceeded the normal. She complained of great abdominal pain, commencing eight hours after the operation and extending into the night. The patient called out several times for relief, so intense was the suffering. I ordered $\frac{1}{4}$ gr. morphia hypodermically, which only gave temporary relief; the pains ceased after the discharge of some blood from the uterus during the next day. Bowels moved by five grains of calomel on the third day after operation. Incision stitches removed on the eighth day; union good. Patient left for the country, relieved from her suffering. Shortly after her return to the country the old pain in the right inguinal region returned; this greatly distressed her, and she begged of me in many letters to do something for her. At first I was of opinion that the pain was perhaps exaggerated, and wrote encouraging her in the belief that it would wear away. She was not to be deceived, for in the beginning of May in this year, six months after the first operation, she again visited my wards in St. Vincent's, and implored me to operate, the pain being quite intolerable.

I made a careful bi-manual examination, and found that the uterus was normal as to position; the left ovary had become greatly enlarged;

the right broad ligament, or what remained of it, felt thickened, and was decidedly tender on pressure. Accordingly, on May 24th, 1893, having hoisted the patient on Trendelenburg's table, I opened the abdomen in the track of the old incision; there were no adhesions to break down, the back of the incision being quite free. The intestines did not fall away, and could not be pressed aside easily with a sponge. I found the cæcum had become adherent to the old pedicle by a very dense and intimate adhesion. The left ovary was larger than a good-sized hen's egg and felt cystic. I determined to remove it quite close to the uterus.

Now, what was to be done with the adhesion of intestine to pedicle? Obviously to separate it; but such a procedure required a resection of the intestine. The patient's condition was too low for such a serious operation, and Mr. M'Ardle agreed with me that such an operation, requiring a prolonged exposure of the peritoneum, would militate greatly against her chance of recovery. We hoped that the anaemic condition of the uterus brought about by the removal of both tubes and ovaries would starve the adhesion, and perhaps lead to its atrophy. We, therefore, reluctantly closed the abdominal incision. I showed this ovary at the May meeting of this Section of the Academy. It had undergone the same degeneration as the right ovary. The recovery from the operation was good; no rise of temperature or pulse; the bowels moved the third day; and the stitches were removed on the eighth day, union good.

After the second operation in May it was hoped that the intolerable pain would be benefited. Such was not the case. At first there was temporary relief, but soon the old dragging pain returned with renewed intensity, specially at night, and the patient was confined to her bed, a burden to herself and her family. Nothing was left to be done except to separate the adhesion.

I again admitted her to St. Vincent's Hospital in the second week of November last and made a careful bi-manual examination. The uterus was still normal in position; the right pedicle, with its adherent intestine, could be easily felt as a thickened indefinite mass; it was distinctly tender. Nothing calling for note was felt on examining the left pedicle. I inverted the patient on Trendelenburg's table and opened the abdomen a little to the right of the mesial line. There was a slight omental adhesion along the track of the old incision. Before I could put my fingers into the pelvic cavity I had to draw aside the omentum and the small intestines—they had become anchored to the pelvic organs by fine

adhesions. There was some difficulty in getting the adherent pedicle well into view, but eventually it was brought well up to the abdominal incision (Fig. 2). A narrow sponge held by an American forceps was placed

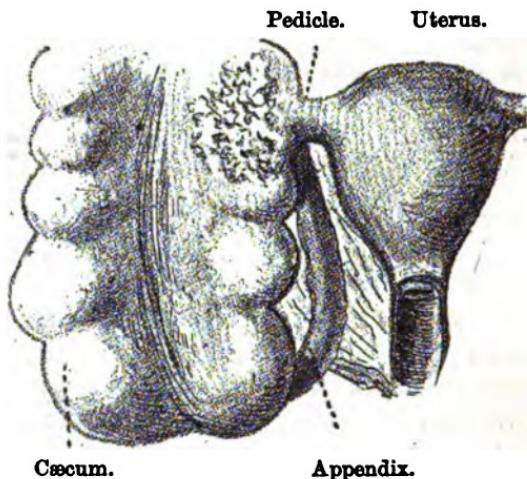


Fig. 2.—Showing relation of adhesion (diagrammatic). The pedicle is shown much too long.

under the arch formed by the adhesion ; the intestines were protected by sponges wrung out of a warm saline solution. The pedicle and cæcum were now held tense by Mr. M' Ardle whilst I separated the adhesion. To our surprise pus welled up ; this was mopped up with moist corrosive wool, and the separating process continued, revealing an extensive ulcerating cavity, formed by the end of the old pedicle, a portion of the wall of the cæcum, and the vermiform appendix. I carefully disinfected the ulcerating surfaces with corrosive sublimate solution 1 in 1,000, and proceeded to deal with each affected portion in turn. The pedicle was short, quite close to the uterus ; it was swollen to the size of the last phalanx of the thumb. Many large veins could be seen around its border ; they looked like haemorrhoids, and concealed the ulcerating surface like a monk's cowl. On unfolding the cowl the old silk ligature was found lying quite loose, and apparently unchanged. [Specimen here shown.] The substance of the stump was very rotten, and gave way easily on the least tension. I transfixated it with a stout silk ligature and tied cautiously, and then cut away the ulcerating surface. I ligatured the vessels separately.

The vermiform appendix was next treated. Its behaviour was decidedly interesting—it was quite turgescent like a semi-erect penis, and beat regularly, the rhythm of the beat synchronised with the pulse. Its crown or apex was eaten away by an ulcer of tubercular character, and its stem

greatly thickened (Fig. 3). The appendix was now held upright whilst I made two oblique incisions through its peritoneal covering, then peeled the peritoneal layer back, as one does the prepuce in circumcision, and amputated the central portion. The tops of the two flaps were next inverted and brought together by two No. 4 silk sutures (as in diagram). The ulcer on the cæcum was the size of a two-shilling piece, with under-

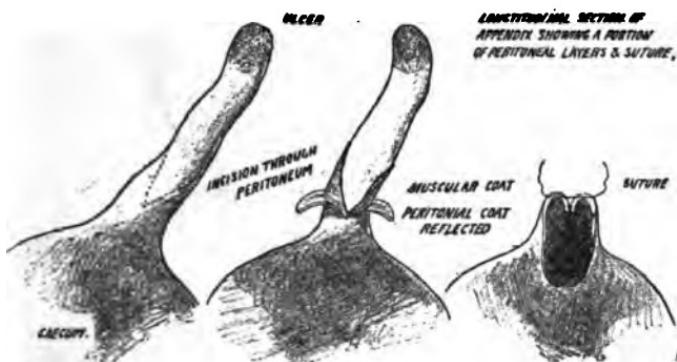


Fig. 3.

mined edges; it was tubercular; its base was slit across to find its extent, and it was found to penetrate as far as the submucous tissue. The intestine was held up by Mr. M'Ardle, and the entire ulcerating surface was snipped off with a scissors, leaving healthy tissue on all sides. The submucous tissue was brought together by a purse-string suture (see diagrams Fig. 4); then the muscular layers by interrupted (No. 4) silk suture, taking in the edge of the peritoneum (see diagram); and, finally, the peritoneum by Lembert's sutures (see diagram); the pelvis was dried and a drainage-tube inserted. The operation, now complete, was performed under 60 minutes.

On recovering from the ether very excessive and persistent vomiting set in, which was so distressing and accompanied by such great abdominal pain that, contrary to my usual practice in abdominal sections, I was compelled to administer $\frac{1}{4}$ gr. of morphia hypodermically, fearing that the exertion and strain of vomiting might do some damage. About three hours after the operation it was noticed that the temperature was 97° F., pulse 110, and the dressing was soaked with blood. I dressed the case and aspirated out of the drainage-tube about a tablespoonful of very dark blood. I hoped that this dark-coloured discharge pointed to a cessation of the haemorrhage, and I gave orders for the pulse and temperature to be taken every half hour, and the dressing to be watched. The patient was under morphia, but on the effects passing off vomiting again returned about 9 o'clock p.m. I happened to be present, and noticed the

patient got very pale; pulse 120; temperature subnormal. She complained of severe pain in the abdomen and the sacral region. Her appearance showed much distress. I considered the pedicle ligature must have slipped, so telephoned to Mr. M'Arkle, who kindly came at once. Both of us took extraordinary care to render our hands thoroughly aseptic. The patient was too weak to be removed from the bed,

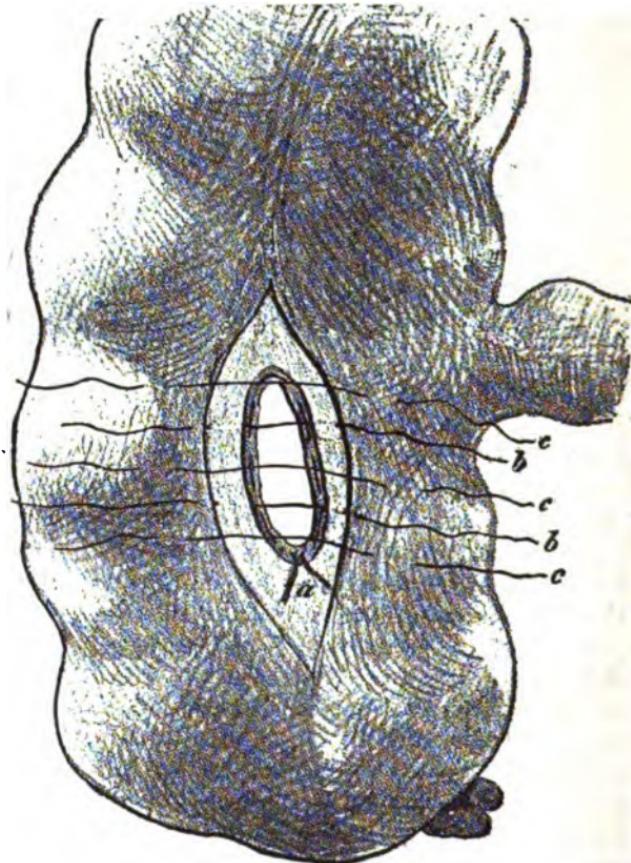


Fig. 4.—*a.* Purse-string; *b.* Intermediate, taking in edge of peritoneum; *c.* Lambert's.

so, with the aid of candles held by nurses, I reopened the abdomen. Blood welled up, just like the haemorrhage in a ruptured tubal pregnancy. Two fingers slipped down to right side of uterus engaged all the tissues, and effectually checked the haemorrhage while the large blood-clots were rapidly removed; we then saw that the silk ligature had cut through the rotten pedicle and was hanging on to a shred. How were we to stop the haemorrhage—there was no pedicle

left? We accomplished it by transfixing part of the uterine wall with a stout silk ligature, tying in two bundles; this controlled the haemorrhage. For extra safety separate ligatures were put on the vessels. I took the opportunity of examining the intestinal suture, and found the suture track well glazed. I then flushed the abdomen with a warm saline solution and left in a drainage-tube; the excess of saline fluid was not aspirated—it was left to be absorbed by the peritoneum, the anaemia of the patient was so great. Again, on recovering from the ether, vomiting set in; drop doses of tincture of iodine given in a teaspoonful of hot water stopped the nausea at once. I had preparations made to wash out the stomach in case the vomiting continued. The patient's recovery was

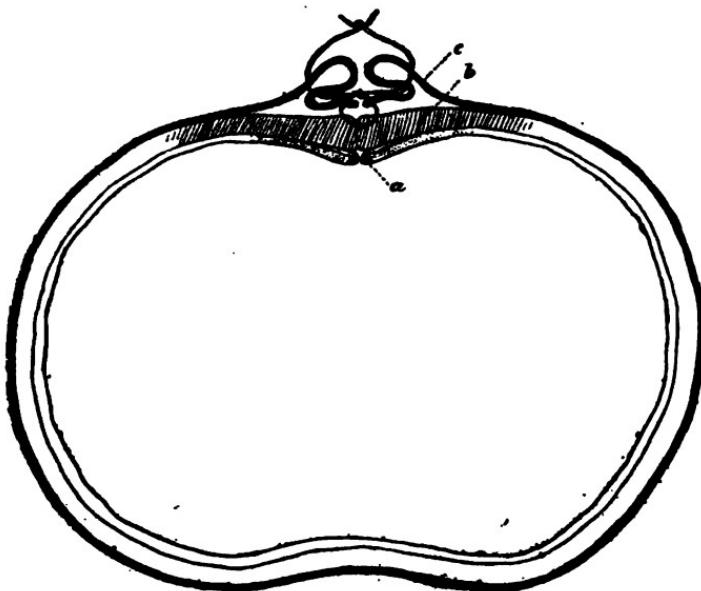


Fig. 5.—Showing suture in section (diagrammatic).

a, Sub-mucous tissue; *b*, Muscular layer; *c*, Peritoneum (suture partially fixed).

extraordinarily rapid; the pulse, which was uncountable after the operation, gradually became stronger and stronger. I was able to remove the drainage-tube on the 4th day. Bowels moved 48 hours after the operation by three grains of calomel, followed by a seidlitz powder and turpentine enema.

Her recovery was uneventful, and was remarkably afebrile. The pains are all gone. All the incision stitches were removed on the 8th day, except the suture in the drainage-tube track, which was taken out on the 10th day; union perfect.

It would be ungenerous on my part did I not acknowledge the skilled assistance of my colleague, Surgeon M'Ardle; his intimate knowledge of intestinal surgery was most valuable; his advice was generously given, and the success of the case is in no small measure due to him.

What was the cause of the pain—I believe now that there was originally a tubercular deposit in the appendix; a low form of inflammation was set up, and it became adherent to the cæcum, infecting it; its subsequent adhesion to the pedicle stump was a mere accident. Critically, I believe this to be the case, and the severe pain suffered by the patient was the same in position, intensity, and character as that for which she was originally operated on; and that the coincidence of an enlarged and painful ovary, accompanied by severe menstrual floodings, caused the condition of the appendix to be overlooked.

I beg to call attention to the fact that this case illustrates—

1st. The value of drainage.

2nd. The rapidity of glazing after suture of the intestine.

3rd. The rapidity of suture by the purse-string and Lembert's method.

4th. How, even after very copious haemorrhage, death may be arrested by prompt treatment.

And 5th. The necessity for careful examination of the vermi-form appendix in cases of persistent right side pain.

ART. V.—*Dilatation of the Stomach, with Enteroptosis.*^a By

H. C. TWEEDY, M.D. Dubl., F.R.C.P.I.; Physician to Madam Steevens' Hospital, Dublin; Examiner in Medicine, Conjoint Board R.C.P.I. & R.C.S.I.

THE case I have the honour of submitting to the Pathological Section is interesting from a twofold aspect. In the first place it is not very frequently that we have an opportunity of making a *post-mortem* examination on a case of dilatation of the stomach so well marked as in the specimen before you, and in the second place it gives me an opportunity of describing another remarkable feature which was present in the same case, viz.—enteroptosis, an anatomico-pathological condition first described by

^a Read before the Pathological Section of the Royal Academy of Medicine, on Friday, Dec. 1, 1893. [For the discussion on this paper, see p. 169.]

Glénard^a in 1885, subsequently discussed in a very exhaustive manner by Ewald,^b of Berlin, Einhorn,^c of New York, and a number of other French and German physicians, but which, as far as I am aware, has not hitherto attracted any notice in this country, though it is of tolerably frequent occurrence, as is evident from the fact that among 1,300 patients with digestive troubles Glénard found 400 with enteroptosis.

CASE.—The patient, P. C., in whom these conditions were observed, was a labouring man from the west of Ireland, thirty-five years of age, of medium height, pale and bloodless aspect, attenuated body and limbs, and who had lived for years on a diet consisting largely of potatoes. He was admitted to Steevens' Hospital on the 23rd of October, 1893, complaining of loss of appetite, vomiting, and gastric pains of long standing. He stated that his stomach had been delicate for many years. He had been in the Royal Irish Constabulary ten years before, but had been discharged in consequence of ill health. He subsequently drank very hard, and had an attack of *delirium tremens*. As his stomach trouble continued steadily increasing, he came up to Dublin, and passed under my care. On admission to hospital he presented the appearance already mentioned, being badly nourished, sallow, the surface of the body and the extremities cold, with a subnormal temperature, and constipated bowels. The abdomen was not distended, but was flaccid and easy to palpate. The abdominal organs were apparently normal, no tumour of any kind could be felt, but the stomach was enormously dilated, extending far below the umbilicus, as was evidenced by a tympanitic note, and by the splashing sound which could be freely elicited all over the umbilical and the upper part of the hypogastric region. The stomach contents, which were examined by means of Einhorn's deglutable bucket, showed an almost complete absence of free hydrochloric acid after a test meal, when treated with Günzburg's solution.

After admission to the hospital he had no vomiting for a week. At the end of that time, however, one morning he was much worse than he had been. He said he knew he had caught cold. From that time on he had vomiting every day, and grew weaker and weaker till the night of the 8th of November, when he was seized with fits, of which he had about six attacks, each lasting for about five minutes. He sank gradually, and died of exhaustion on the 9th of November.

The following day a *post-mortem* examination was held. On opening the abdomen almost the entire superficial space was occupied by stomach,

^a Lyon Médico. Mars, 1885. T. XLVIII., p. 450.

^b Berliner. klin. Woch. 1890. No. 12, &c.

^c Post Graduate. New York. Vol. VIII. No. 2. 1893.

in fact nothing else could be seen at first except a wedge-shaped portion of the left lobe of the liver, which was inserted into a sort of sulus, which was all that was apparent of the lesser curvature. The greater curvature almost touched the pubes, and covered in both iliac fossæ, and the fundus could be felt as high as the sixth intercostal space on the left side.

On raising the stomach the transverse colon came into view, extending from the hepatic to the splenic flexure in a long curve corresponding roughly to the greater curvature, and about the level of the anterior superior iliac spines. The ascending colon was normal in position and length, as was also the descending colon; but the angles found at the hepatic and splenic flexures—especially the latter—were very acute in consequence of the descent of the transverse colon. This portion of the intestine and the ascending portion were packed with hardened faeces. The liver, both kidneys, and spleen occupied their normal positions, as did also the upper portion of the duodenum. There was scarcely a trace of great omentum, and the transverse colon, as before mentioned, was almost in immediate apposition with the posterior aspect of the stomach. There were no adhesions, or any other signs of inflammation present.

The stomach contained about a quart of liquid, and when after its removal it was filled with water, its capacity was found to be 160 ounces. The pylorus was somewhat thickened, as were also the walls and mucous membrane, except at the fundus, and about the centre of the greater curvature there was a small round cicatrix, about the size of a sixpence, evidently the seat of a former ulcer.

To trace the cause of this great dilatation of the stomach is not a difficult task. First, we have the long and habitual overloading of the stomach. The patient was a poor man. Potatoes had for years formed a staple portion of his diet, and the poor quality of this form of food necessitated taking large amounts of it, thus weighing down the stomach till even the hypertrophied muscles are unequal to the strain of propelling the food into the duodenum. Hence the retention and stagnation of the ingesta, followed by gastric catarrh and subsequent atony and even paresis of the muscular fibres. But there is another—an anatomical—cause; I mean the relation of the pylorus to the duodenum. The first part of the duodenum is two inches in length;^a it is covered by the same two layers of peritoneum which envelop the stomach; it possesses tolerable freedom of motion, and passes backwards and to the right, turning sharply to form the second portion, which runs downwards for about three inches, and is firmly fixed. Any

^a Vide Manual of Pract. Anat. Cunningham. Vol. I, p. 502.

cause, therefore, that would tend to depress the stomach would naturally cause traction on the pylorus, and consequently on the first portion of the duodenum.* This would necessarily give rise to a stenosis by increasing the sharp bend between the movable first portion and the fixed second portion of the duodenum. This was the more probable as there was little or no constriction of the pylorus, the valve being easily permeable by the tip of the index finger.

But perhaps the most interesting feature of the case was the position of the transverse colon, which represented, though in a somewhat exaggerated degree, the condition described by Glénard under the name of "enteroptosis."

Glénard^b based his observations on the fact that the alimentary canal, from the stomach to the rectum, is suspended by ligamentous attachments at certain points; that at several of these fixed points sharp angles were formed; and that if any of these ligaments became relaxed or gave way it was attended with two results:—1st. A falling (ptosis) of that portion of the alimentary tract; and 2nd. In certain cases—*e.g.*, in the transverse colon—increased traction on the next fixation point, causing obstruction to the passage of ingesta, and even partial stenosis of the intestine itself. He describes different varieties of this affection, according to the situation in which the attachments become relaxed, as "gastro-ptosis, hepatoptosis, splanchnoptosis, nephroptosis," &c.; but it is with enteroptosis alone we have now to deal.

Glénard believes that the condition is most likely to arise in the right portion of the transverse colon; that owing to a relaxation of the colico-hepatic ligament, the ascending and transverse portions run obliquely from below upward across the abdomen to the splenic flexure, where the intestine is held firmly in its place by the phrenico-colic ligament; that the acute angle produced at this point by the falling down of the other end of the transverse colon causes a narrowing of the lumen of the gut and stoppage of its contents. He details several physical signs as diagnostic of this condition, as splashing, pulsation of the abdominal aorta, movable kidney on the right side—all of which may be met with under other conditions; but the physical sign on which he lays most stress is "corde colique transverse," by which he means the

* Since the above was written, I notice that attention has been drawn to an almost identical condition by Sir Wm. H. Broadbent in his lecture published in the "British Medical Journal," December 2nd, 1893.—H. C. T.

^b Loc. cit.

sensation on palpation as of a ribbon-like band, one centimetre in width, which was supposed by Glénard to be the displaced transverse colon lying over the aorta, above the navel. His reason for believing this was that pressure in the right iliac fossa on the ascending colon produced rumbling sounds in the "corde transverse."

Ewald is of opinion that the "corde colique transverse" is in reality the pancreas, and believes that the surest method of diagnostinating the condition is to find out the exact position of the stomach. This is done by the ordinary method of inflation or by gastrodiaphany as practised by Einhorn, and if the lesser curvature of the stomach be found below the ensiform process, or midway between it and the umbilicus, he concludes that gastrophtosis is present, and, this being so, that the diagnosis of general enteroptosis naturally follows.

In speaking of patients suffering from this affection, Glénard alludes to them as nervous dyspeptics, and Ewald classifies the disease among neuroses of the stomach, as the remarkable relaxation of ligaments leading to gastrophtosis, splanchnoptosis, &c., would probably most frequently be found in neurotic subjects. But no such cause could be assigned in the present case, in which the condition appeared to be of a purely mechanical origin. In the first place, there was no malposition of the ascending colon, the hepatic flexure was in its normal position, as was also the splenic flexure; but evidently the stomach, as it became more and more dilated, caused strong traction on the freely movable transverse colon; this it could readily do as the omentum was so short. The intestine was thus gradually drawn down and stretched till it was much greater than its normal length, extending, as it did, along the posterior aspect of the stomach, level with, and in the mesian line lower than, the two iliac spines, while the accumulation of faeces further increased the weight of the bowel, and also in a great measure accounted for the constant pain the patient suffered, as there was a continual drag on the phrenico-colic ligament.*

This case, then, though a true ptosis of the transverse colon, differs from the condition described by Glénard in the following particulars:—

1st. The patient could not be pronounced in any sense a neurotic subject.

2nd. The hepatic flexure of the colon was in its natural position,

* Vide Paper on "Causation of Left-side Pain." By Dr. Wallace Beatty. Trans. Royal Acad. Med., Ireland. 1883. P. 25.

nor was there relaxation of any of the attachments of the bowel with the exception of the transverse mesocolon.

3rd. In a typical case of Glénard's disease the transverse colon is the first part affected; then follows relaxation of the mesentery, the small intestine descends to the pelvis, the stomach is then drawn down (*gastrophtosis*), and subsequently there may be a falling of all the viscera, constituting what he termed *splanchnoptosis*.

In the case before us, however, the enteroptosis was distinctly secondary to the dilatation of the stomach, or at least coincident with it.

CHLORALOSE.

In a communication to the Genoa Academy of Medicine, Signor Maragliano gives his experience with chloralose:—Sleep follows a quarter or half an hour after the administration of the dose, and continues the whole night through, followed by drowsiness next day. The sleep is unbroken and undisturbed by dreams. Patients troubled with a cough found the chloralose rather aggravated the intensity and frequency of the fits during sleep. Sometimes local and general convulsions, lethargy, catalepsy, and somnambulism, have followed on its administration. These observations correspond with the physiological effects noted by the discoverer of chloralose, Heffter, in 1889. Experimenting on frogs, dogs, and rabbits, he found that full doses produced convulsive movements, and finally death by paralysis of the centre of respiration. Throughout, the drug produced no depressing effect on the heart, neither was the blood pressure lessened in the arteries.

THE BINIODIDE OF MERCURY.

MR. A. HANBURY FREERE, M.B., of Leeds, in a letter dated July 28, 1893, addressed to the editor of this Journal, calls attention to the very great value of the biniodide of mercury, as recommended by Dr. Illingworth in his valuable little work.* In a recent epidemic of whooping-cough those cases in which the biniodide was prescribed did markedly better than the others. In scarlet fever and diphtheria, as also in puerperal fever, the biniodide cannot be surpassed. In the treatment of wounds Mr. Frere never found the biniodide to fail; and his only surprise is that the bichloride should still be used, more especially when it has been pointed out that to prevent mercurial poisoning the iodide of potassium should be taken, thus rendering the metal soluble and not cumulative.

* "The Abortive Treatment of Specific Febrile Disorders by the Biniodide of Mercury." Published by H. K. Lewis, 136 Tower-street, London, W.C.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Text-book of the Physiological Chemistry of the Animal Body, including an account of the Chemical Changes occurring in Disease.
By ARTHUR GAMGEE, M.D., F.R.S. Vol. II.—The Physiological Chemistry of Digestion. London: Macmillan & Co. 1893. Pp. 528.

IT is nearly fourteen years since the first volume of this important work was published, and during all this time it has remained a standard book of reference for physiological chemists. Although called a first volume it was really an independent work, complete in itself, dealing with the chemistry of the elementary tissues, the blood, lymph, and chyle.

The present volume, which has been so long looked for, is also an independent treatise, dealing completely and exhaustively with the great subject of digestion. There can be no doubt that it is a worthy successor to the earlier volume and that it will prove equally useful and popular among scientific men.

Although there is in many places abundant evidence of the independent investigations of the author, yet the work is mainly a compilation, but a compilation of a very remarkable kind. Any one who has had occasion to work up the literature of any great branch of Physiology knows the enormous labour involved in such an undertaking, owing to the enormous mass of papers and the widely-scattered way in which they are published in journals of all kinds and of all nations. In the present volume will be found probably the most full, exact, and complete *résumé* of the literature of the Physiology of Digestion that has ever been attempted. We know of no work in which the views of the different authors quoted are so fully given, and where every statement is accompanied by a reference to the source from which it is derived. The value of such a work can scarcely be over-estimated, and the labour which it will save to future workers will ensure the author much gratitude.

After a few introductory observations on enzymes and their mode of action, the subject of saliva is considered. A sufficiently full account of the structure and nervous supply of the salivary glands is given, and the changes observed in the cells during the process of secretion are touched on. The existence of a mucigen or precursor of mucin, which has been assumed from differences in logwood staining, is considered on the authority of Langley as very doubtful. We are surprised to find no notice of the zymogen of ptyalin, which seems to be proved by the observations of Goldschmidt, who found that saliva collected from the parotid duct of the horse aseptically and without coming in contact with the air possessed no diastatic power, but gained this in the mouth during the act of chewing or when it lay for a short time exposed to the air.

A very full and clear account is given of the changes produced in starch by the action of saliva, and of the changes undergone by the saliva in disease.

In the next chapter, on gastric digestion, a most interesting and readable historical sketch is given, showing the gradual development of our knowledge of this process.

The methods of obtaining gastric juice, the phenomena attending its secretion, the influence on it of the nervous system, and its physical and chemical characters are all dealt with. Its important constituents—pepsin and acid—are then considered more fully. The author proposes a modification of Maly's well-known hypothesis to explain the formation of an acid secretion from the alkaline blood. He removes the seat of formation of hydrochloric acid from the blood generally to the gastric glands, and while adopting Maly's conception as to how physical and chemical processes may lead to the formation of the acid of the gastric juice, he subordinates them to the activity of the glandular epithelium, which must first bring together the bodies which have to react one upon the other.

In this chapter the section on the action of the gastric juice on proteids is most remarkable. The subject of the changes which proteids undergo on their way to peptones is one of the most difficult and chaotic in physiology. Here we find the processes clearly and intelligibly described, and at least a comparative order introduced. This part is supplemented by sections in the Appendix giving the more recent researches of Neumeister and of Kühne, who states that he has at last succeeded, but by a most

laborious method, in getting peptone absolutely free from all mixture with albumose. The rennet ferment is fully treated of, and important sections will be found on the changes in the gastric juice in disease, and on the methods to be employed in the examination of the gastric contents for clinical purposes.

In the chapter on the pancreas the structure and the nervous and vascular supply of the organ are first described; then the methods of establishing a fistula, the general characters of the secretion, and the changes in the cells accompanying the activity of the gland are detailed. An account of the general physical and chemical characters of the secretion follows, and then the different ferments are considered *seriatim*.

Professor Gamgee differs from those who deny the existence of a fat splitting enzyme, and who attribute the decomposition of neutral fats to an organised or bacterial ferment. He does so on the following grounds:—

"First—Perfectly clear glycerine extracts of pancreas may be obtained which possess the fat-decomposing powers. Secondly and thirdly—The action is one which is, as Bernard showed, almost instantaneous, and in this respect resembles actions exerted by other unformed ferments, and is unlike those which are dependent upon organised forms. It takes place, moreover, in the presence of such bodies as thymol, which effectually prevent the action of the organised ferments."

Here, as in the case of the stomach, an admirable account is given of the products of pancreatic digestion of proteids—the antipeptides or tryptones and the products other than albumose and peptone. Among these are the long-known leucin, tyrosin, aspartic and glutamic acids, and the chromogen or tryptophane, but there have recently been discovered certain basic substances—namely, lysin and lysatin or lysatinin, the latter having the same empirical formulae as creatin and creatinin, and like them capable of yielding urea by their decomposition. It is, therefore, probable that some of the urea may be derived from decomposition of lysatinin, but calculation shows that only one-ninth of the entire quantity of urea formed can have this origin.

Naturally, the bile comes in for a very extended notice. The methods of obtaining bile, the different kinds of biliary fistula, the secretion of bile and the circumstances which influence it, are all fully described. The so-called amphibolic fistula of Schiff is specially commended. Here a fistula is made into the gall-bladder, but the common bile duct is not occluded, so that at will the bile

can be made to flow externally or into the intestine. This is a matter of importance, since the researches of Wertheimer have proved beyond question that bile is absorbed from the intestine and secreted over again, thus establishing the truth of what has been called the circulation of bile.

The general characters of the bile are then given, and this is followed by a description of each of its constituents.

The author believes that urobilin is identical with Maly's hydrobilirubin, thus differing from MacMunn. He rightly warns against the danger of drawing far-reaching conclusions as to the existence, origin, identity, and relations of complex organic bodies merely from a study of the absorption spectra, or rather of the absorption bands, of organic fluids or extracts, and of the changes which they exhibit under the influence of certain reagents.

He has also made the important and interesting observation that the cholohaematin, which occurs in the bile of sheep and oxen and gives a four-banded spectrum, does not exist in the bile at the moment of death, but rapidly forms when the bile is exposed to the air, independently, however, of all putrefaction.

The so-called mucus of the bile, which is now known not to be mucus but a nucleo-albumin, has a section to itself.

A very full discussion of all the questions connected with the uses of the bile, and in how far it is to be considered an excretion and how far a digestive secretion, is given in this chapter.

In the following chapter the subject of jaundice is dealt with. The existence of a haematogenous jaundice is, in accordance with all modern views, denied, and it is maintained that all cases of jaundice are due to reabsorption of bile already formed in and by the liver. Notwithstanding all the researches which have been made on the influence exerted by drugs on the secretion of bile, the subject is still very badly understood. The author is of the opinion that a renewed investigation of the subject is desirable, carried out by means of Schiff's amphibolic biliary fistula, by which the disturbing influence of the absence of bile from the intestine might be eliminated from the experiment.

A very interesting chapter on gall-stones, and one on the methods for the analysis of the bile and biliary calculi, bring the consideration of the bile to a close.

In the chapter on intestinal digestion we find, first, an interesting account of the recent investigations on the chemistry of the of the reticular or adenoid tissue of which the mucous membrane

consists. This differs from ordinary connective tissue. It does not yield gelatin on boiling, and is unacted on by trypsin. A substance has been got from it in tolerable purity which is named reticulin by its discoverer, Siegfried. This, while related to the proteids differs from them in many respects; it contained a larger percentage of sulphur, also phosphorus not due to a nuclein residue. "When subjected to prolonged boiling with stannous chloride and hydrochloric acid it yields amido-valerianic acid, sulphuretted hydrogen, ammonia, lysine, and lysatinine, *but neither leucine nor tyrosine.*"

Some valuable practical hints on the best method for the establishment of a Vella's fistula will be found on page 407.

The author has found that pilocarpin does not constantly call out a secretion of succus entericus.

The following summary of the actions of the intestinal secretion is given:—"The intestinal mucous membrane and its secretion have thus been shown to exert no chemical action on the proteid constituents of food, but to play a great part in the digestion of the carbohydrates of the economy, completing, if necessary, the conversion of starch into soluble products, splitting up saccharose and lactose into glucoses, but, above all, converting maltose into grape sugar.

Proper putrefaction does not occur in the small intestine; but under the influence of bacteria, many of which have been isolated and studied, the contents of the bowel undergo a decomposition of a more fundamental character than that brought about by the digestive enzymes. The results of these decompositions are the subject of the tenth chapter, where we find an account of the indol, skatol, aromatic oxy-acids, phenol, and other products of intestinal bacterial action. The conversion of carbohydrates into lactic acid, alcohol, and possibly butyric acid, has been shown by the researches of Macfadyen, Nencki, and Sieber, and to this large development of acid is due the established fact that the contents of the small intestine, except at its very upper part, are acid. From this it follows that the action of the pancreatic secretion, whose ferment are destroyed by acid, must be suspended higher up than was formerly supposed.

The unexpected and remarkable discovery that water is not absorbed from the stomach, which has recently received full confirmation from the experiments of v. Mering, obtains full notice, and is a good example of how well up to date the work is brought.

We are, therefore, the more surprised to find no notice of the experiments of Hermann and his pupils showing the large share taken by the secretion of the intestine in the production of fæces.

The non-occurrence of ptomaines in the intestine under normal circumstances, and even for a day after death, is remarkable, since bacteria are present, which, when removed from the body, are capable of producing ptomaines in culture media. This may be due either to the antiseptic action of the bile or to the oxygen which probably diffuses continually from the blood to the intestinal contents. In some cases, however, ptomaines have been found. Thus, in cystinuria both cadaverin and putrescin have been found, while in cholera these ptomaines, which are innocent, and, in addition, the very poisonous methyl guanidin and other ptomaines which lower the temperature are found. We are convinced that many obscure forms of disease will find their explanation in abnormal bacterial actions which occur in the intestines owing to infection, or to change in the digestive secretions.

The processes in the large intestine and the formation of the fæces conclude the chemistry of digestion. In the chapter treating of this stage of the process we find much of interest concerning the fæces in disease, such as the remarkable difference recently discovered by Blachstein between *Bacillus coli communis* and *Bacillus typhi*. Both decompose sugar with production of lactic acid; but, while *Bacillus coli communis* forms dextrogyrous lactic acid, *Bacillus typhi* forms laevogyrous lactic acid, and, so far as is known, is the only *pathogenic* organism which does so.

In the last chapter is some account of the comparative physiology of digestion, and in an Appendix are given some recent works which appeared during the printing of the book, dealing chiefly with the products of gastric digestion and the methods of analysis applicable to the contents of the stomach.

In conclusion, we have again to express our high estimate of the value of this book. It forms a platform from which future workers can start, as by it they are brought fully up to the level of our knowledge of to-day. The fulness of the references and the vast amount of information given in the text makes it almost unique even among the many excellent works on physiological chemistry which have recently appeared.

The volume is admirably printed, and in every way handsomely brought out. It is illustrated with well-executed wood engravings and two beautiful chromo-lithographic plates of bile spectra. We

find, however, even for a first edition, a very large number of misprints. We hope that the demand for a second edition will soon give the author an opportunity of correcting these.

A Treatise on Hygiene and Public Health. Edited by THOMAS STEVENSON, M.D., F.R.C.P. Lond.; Lecturer on Chemistry and Medical Jurisprudence at Guy's Hospital; Official Analyst to the Home Office; and SHIRLEY F. MURPHY, President of the Incorporated Society of Medical Officers of Health; Medical Officer of Health of the Administrative Council of London. Vol. II. London: J. & A. Churchill. 1893. 8vo. Pp. 847.

IN noticing the first volume of this great work in the number of the Journal for November, 1893 (Vol. XCVI., No. 263, Third Series, page 401), we drew attention to the main features of the book. These are reproduced in the second volume, which now lies before us. It contains monographs of the greatest value and of the first importance on several of the vexed questions of the present day, such, for example, as the pathology and aetiology of infectious diseases (Dr. E. Klein), the natural history of infectious diseases (Mr. T. W. Thompson), and the disposal of the dead (Sir T. Spencer Wells, Bart., and Mr. F. W. Lowndes). Nor are the other subjects dealt with in the volume of less interest and value. Dr. John C. M'Vail writes in detail on smallpox and vaccination, Dr. Arthur Ransome on vital statistics, Dr. Henry E. Armstrong on marine hygiene, Dr. J. Lane Notter on military hygiene, and Dr. Alfred Ashby on the "Medical Officer of Health."

That trouble and expense have not been spared to make this work worthy of its great theme is evident by the fact that no less than forty-two plates of lithographs and chromo-lithographs by Newman West illustrate Dr. Klein's article on the pathology and aetiology of infectious diseases.

With singular discretion and conspicuous success the editors have left each author to express his views with absolute freedom from editorial restraint, wisely judging that their duty to the medical public was in large measure discharged when they had selected men of reputation and standing as contributors of articles on topics with which their names were already more or less intimately associated and identified.

Nor have the editors attempted to prevent that amount of

repetition which is unavoidable when a number of authors write independently on kindred topics.

The principles which have thus guided the editors in the discharge of their duty have added freshness and novelty to a work which may be taken to represent modern English opinion in relation to Preventive Medicine.

It would not be possible within the limits of a review to do justice to this large volume of more than eight hundred pages. We must, therefore, be content to draw attention to a few salient features in the different monographs which make up the work.

Dr. Klein's definition of bacteria is well worth quoting. "Bacteria," he says, "are microscopic organisms which contain no chlorophyll, which possess an investment of cellulose, and are therefore considered to belong to the vegetable kingdom, which multiply by simple division or fission, and are therefore called by Naegeli, Schizomycetes ($\sigma\chi\zeta\omega$, divide, and $\mu\kappa\eta\varsigma$, fungus). . . . They do not possess, in any conspicuous degree, like vegetable cells, the power of building up complex organic substances from simple inorganic material; but, on the contrary, on the plan of animal cells, they have in an eminent degree the character of destroying or breaking down higher or complex organic molecules into those of simpler combinations." "Bacteria," the author adds, "are single cells of extremely minute size, 0·1 to 1 μ^* or more, consisting of a protoplasmic body—mycoprotein of Nencki, and an investing sheath of cellulose. The protoplasm while active and living is homogeneous, when dead often appears granular; it has great affinity for neutral and basic aniline dyes, and in this respect compares with the substance of nuclei in vegetable and animal cells." (Page 5.)

Chapter II., on the conditions and mode of multiplication of bacteria, reads in places like a fairy tale. For example, an experiment was made of injecting 20,000 bacilli of fowl-cholera into a rabbit. The animal died in about twenty hours, when it was estimated that its blood contained some 1,200,000,000 of the specific microbes of the disease. This would mean that each one of the 20,000 bacilli injected had given origin to a host of 60,000 bacilli in twenty hours.

According to modern research, bacteria may be grouped into (1) obligatory anaërobic, or such species as do not grow except when free access of oxygen (air) is excluded; (2) facultative

* 1 μ =one micromillimetre=one twenty-five thousandth of an inch.

anaërobic, or such as can grow in absence of free air, though they grow better if air be present; (3) facultative aërobic, or those which grow better without free air, though they grow also, but not so well, when free air is admitted—*i.e.*, on the surface of the nutritive medium; and (4) obligatory aërobic, or such as do not thrive and multiply without copious supply of air. It was, of course, Pasteur who first showed that a radical difference existed between the various bacterial species in their requirement of free access of air during their growth and multiplication. He distinguished those which can grow without free access of air as anaërobic, the others as aërobic.

Dr. Klein points out that one of the most important and interesting phenomena in the life-history of bacteria is the power of some species to form *permanent seeds* or *spores*, by which the species can preserve itself and withstand a variety of adverse circumstances, for example, the presence of different noxious chemicals, cold, heat, drying, &c. For this reason, the question of the formation of spores plays a most prominent rôle as regards infectious diseases. The author cites some very striking illustrations of this fact. Thus, the deadly *Bacillus anthracis* does not form spores when kept away from the air—*i.e.*, from a supply of oxygen. If, then, the body of an animal dead of malignant anthrax is left unopened and so buried, no harm follows, because the specific bacilli gradually degenerate and disappear, being suppressed by putrefactive organisms. But let the blood, or the nasal or other discharge, from such an animal be exposed to the air for a sufficient time, the bacilli will form spores, and then neither putrefaction, nor drying, nor chemical agencies such as acids and alkalies, will affect the power of these spores to germinate again into bacilli and to produce virulent anthrax should they find access to a suitable animal body. If the infected blood and discharges of an animal dying or dead of malignant anthrax finds access to the surface of the soil, the bacilli multiply and form spores. It is these spores which, after the lapse of months or even years, are picked up by animals grazing in the infected field. The same thing occurs in woolsorters' and hidesorters' disease, which is virulent anthrax in the human beings engaged in the sorting of wool or the handling of hides derived from animals—sheep, goats, and cattle respectively—which had succumbed to fatal anthrax. In these cases it is always spores of the *Bacillus anthracis* which are the cause of infection of the human beings who handle the hides.

It is believed that no micrococcus, or non-spore-forming bacillus, can withstand exposure to a temperature of 70° to 75° C. (158° to 167° F.) even for a few minutes, whereas not a few species of bacilli exist whose spores can successfully resist an exposure to 100° C. (212° F.) for two, three, or even five minutes. The spores of *B. subtilis* and *B. anthracis* readily withstand an exposure to 95° C. (203° F.) for nearly an hour.

A temperature of at least 16° C. (60·8° F.) is required for the formation of spores, which takes place as endo-spores. Spores while fresh have a conspicuously sharp and dark outline, their general aspect is glistening, and it is supposed by Cohn that they are possessed of a double envelope, an inner one of a fatty and an outer one of a gelatinous nature: it is particularly the former which provides the spores with their great resistance to drying and to heat. Spores when placed under suitable conditions of warmth, soil, moisture, and air-supply germinate again into bacilli, the first indication that they are about to germinate being that their outline becomes less sharp at one point. This is generally at one of the poles, or at the long side of the spore. The time required for the germination of a bacillus from a spore varies with the different species. Koch observed the process in *B. anthracis* to be completed within an hour. Klein himself witnessed the complete formation of a bacillus from a spore of *B. filamentosus* in broth, in the "suspended drop," at 37° C. (98·6° F.), to be certainly less than an hour.

The chapters (III. and IV.) on the morphology and biology of bacteria are full of interest. They are followed by an account of phagocytosis and immunity, but Dr. Klein is no blind follower of Metschnikoff and his school. He inclines rather towards the views of Buchner, who has given good reasons for regarding the germicidal substances as belonging to the albuminous bodies of the blood and plasma, so that he has called them "alexins" (Gk., ἀλέξειν, to protect). The author has "arrived at the conclusion, which seems on the whole the most feasible one, that the principal and essential agent in preventing the growth and multiplication of particular specific microbes within the insusceptible animal is the inimical action of the lymph and blood plasma, the alexines; this action may or may not produce phagocytosis. In the former case the phagocytosis may help to remove the weakened or dead bacteria, but this is not an essential or necessary factor in the process of the weakening and destruction of the microbes. Where the blood

or the tissue juices do not possess this power, the animal is susceptible." (Page 55.)

The foregoing facts are brought out in Section A. of Dr. Klein's monograph. Section B., which occupies about 160 pages of the volume, is devoted to a description of the different specific or pathogenic bacteria. This part of the work is uncommonly well done. Many interesting questions are discussed, and, on the whole, a satisfactory account is given of the various diseases and their bacteriological relations. Contrary to the opinion held by E. Fränkel (*Centralblatt für Bacteriologie und Parasiten*, VI., p. 691), Klein maintains, with Fehleisen, the separate identity of the microbe of erysipelas. No doubt, the morphological characters of the *Streptococcus pyogenes* and the *Streptococcus erysipelatos* are closely akin, but Klein points out that no clinical observer will admit that erysipelas is an ordinary phlegmon, while the assumption that the *Streptococcus pyogenes* of simple phlegmon may increase in virulence, and so cause erysipelas by becoming the streptococcus of this disease, and that, on the other hand, this streptococcus by attenuation may cease to cause erysipelas and produce only simple phlegmon, "is based on very insufficient evidence."

Chapter XVI., on epidemic pneumonia and influenza, opens with a sentence which does scant justice to English clinical observers. Dr. Klein says:—"By the researches of Leyden and others it has been shown that the disease known as lobar or croupous or fibrinous pneumonia belongs to the group of infectious diseases." The bacteriology of influenza, up to the present, is little more than a negative quantity, notwithstanding Pfeiffer's and Kitasato's discovery of the "constant presence" in the bronchial sputum and in the pulmonary exudation in all cases of influenza, mild or severe, of minute bacilli, showing when stained a characteristic bipolar granule with intermediate clear part, which causes them to resemble diplococci.

We cannot speak in too high terms of praise of the splendid series of forty-two plates which illustrate Dr. Klein's monograph. They are a costly, but an invaluable, addition to his work. The interest of the series probably culminates in the last—the forty-second—plate, which is copied from Golgi's "*Studien über Malaria*," which appeared in the fourth volume of the *Fortschritte der Medicin*. Thirty of the thirty-eight drawings included in this plate show the behaviour of the *Plasmodium malariae* inside a red blood disc, its growth at the expense of the substance of the disc,

the formation and gradual shifting in position of pigment granules derived from the haemoglobin, and the various progressive stages in the process of cleavage undergone by the plasmodium to its completion and the final isolation of the spores.

The second monograph in this volume is by Mr. T. W. Thompson on the "Natural History of Infectious Diseases." We are sorry to find that he is not sound on the doctrine of the separate entity of Rötheln. He admits, indeed, that "the consensus of modern authorities as to the existence of a malady of the above sort seems to be too strong to allow of serious doubt upon the point; but," he adds, "to the independent mind a perusal of the literature of the subject may perhaps justify suspicion that the attitude adopted by some authorities upon this matter is somewhat too exclusive and absolute." He afterwards goes so far as to say that "neither would there seem any inherent impossibility in the notion of some of such disease varieties, including rötheln, being of a hybrid character, as has frequently been suggested." "It might be suggested as a criticism upon the hybrid theory that in bacteria sexual processes are absent. This, however, can by no means be safely affirmed." (Page 265.)

Now, the answer to such speculative statements is to be sought for, and will be found in, close, painstaking, and extended clinical observation of the three diseases—measles, scarlatina, and rötheln. The confusion which has arisen has resulted from superficial, careless, and limited observation. A measles rash is detected—the disease is measles; a scarlet rash, unaccompanied by any of the classical epiphena of scarlatina, appears—the disease is scarlet fever. In reality, in each case it is rötheln, and nothing else.

The opening sentence of Mr. Thompson's account of typhus fever is not felicitously expressed. He says (p. 274):—"Typhus has only in our own day been clearly differentiated from other fevers, notably enteric and relapsing fevers, with which it had been previously confused." The reverse is more strictly true—enteric fever and relapsing fever were mistaken for typhus, not typhus for them.

The description of typhus, like that of the other infectious diseases, is illustrated by a curve copied from Dr. Alexander Buchan's and Sir Arthur Mitchell's well-known paper on "The Influence of Weather on Mortality," which was published in the *Journal of the Scottish Meteorological Society*, July, 1874, and July, 1875. This curve is based on the deaths from typhus, for

all ages and both sexes, which were registered in London in the years 1869-1874. A marked rise in the curve towards the close of September and early in October can hardly be due to any other cause than a confusion between enteric fever and typhus. The true typhus curve does not show an upward tendency until the end of December—three months later in the year.

Mr. Thompson's accounts of diphtheria, epidemic cerebro-spinal fever, enteric fever, and cholera are all good and full. At the end of his description of enteric fever, however, he inclines to the heterodox view that this disease may arise spontaneously. If so, why should he not at once admit the *de novo* origin of cholera and any other specific disease?

The third monograph in this volume is on "Smallpox and Vaccination" by Dr. John C. M'Vail, F.R.S.E., Medical Officer of Health of the Counties of Stirling and Dumbarton. It forms an excellent summary of the subject from a Public Health point of view, and the historical portion is replete with learning and shows deep research. As was natural, the epidemic of smallpox at Sheffield in 1887-88 affords much material for discussion. A diagram is reproduced from Dr. Barry's able report on that now historic outbreak on page 449, which shows in a very striking way the proportion of cases of smallpox of different types which occurred in persons of the "vaccinated" and "unvaccinated" classes respectively at all and certain specified ages in the Borough Hospital, Winter-street, Sheffield, and at the Sheffield Union Workhouse Hospitals. The evidence thus graphically brought forward is conclusive, but the appearance of the diagram is unfortunately marred by clumsy workmanship. Writing in Dublin, we cannot but regret the omission of any reference by Dr. M'Vail to the very important statistics relative to smallpox and vaccination drawn up after the epidemics of 1871 and 1878 by Dr. T. W. Grimshaw, now Registrar-General for Ireland, and embodied by him in his Medical Reports to the Managing Committee of Cork-street Fever Hospital, Dublin. More startling testimony against the anti-vaccination fanaticism of a small portion of the community could not be adduced than that which the experience of the two fearful epidemics of recent times in Dublin bears in silent eloquence.

In the history of protection by vaccination given by Dr. M'Vail, Benjamin Jesty, the Gloucestershire farmer, occupies no niche in the temple of fame. According to our author, somewhere about

the year 1768, a young woman called for advice at the surgery of a country doctor in a Gloucestershire village. Referring in the course of conversation to smallpox, she remarked, "I cannot take that disease, for I have had cowpox." The remark was heard by the doctor's apprentice, Edward Jenner, and sank deep into his mind. It was not, however, until 1798 that the results of the experiments suggested by this incident were published in "*An Inquiry into the Cause and Effect of the Variolæ Vaccinæ.*"

Commenting on the alleged risks of vaccination, Dr. M'Vail puts the case well when he says (page 457), "in an ocean of error there may be a droplet of truth." He, of course, admits the occasional, nay the very exceptional, occurrence of vaccinal syphilis and of vaccinal erysipelas. As to the conveyance of leprosy by the operation, the evidence is all but universally negative.

In conclusion, we repeat that Dr. M'Vail has written a first-rate article on a highly important and practical subject. The same remark applies to the remaining communications in this second volume of a great work. Within the narrow compass of 42 pages Dr. Arthur Ransome has managed to condense an immense amount of information on the difficult topic of Vital Statistics, which—as he well observes—"are the foundation of sanitary effort, and the basis of the work of medical officers of health." The headings in this article are—(1) the Census, (2) statistics of mortality and reproduction, (3) statistics of sickness, (4) statistics of measurements, (5) graphic representations of statistics, (6) sources of fallacy in them, (7) methods of using them, (8) practical applications of vital statistics by medical officers of health.

Dr. Henry E. Armstrong and Dr. J. Lane Notter seem to have devoted themselves with great success to the subjects of marine hygiene and military hygiene respectively. The former article ends with a full bibliography of the subject; in the latter Dr. Notter deals with the difficult topic of venereal disease and the repeal of the *Contagious Diseases Acts* with conspicuous good taste. Incidentally, he expresses the opinion that since the passing of the Compulsory Education Act the moral tone of the population at large has improved, so causing a diminished prevalence of venereal disease, in the benefit accruing from which the army has shared. At the same time, we are thoroughly in accord with him when he says (page 669)—"We are justified in believing that this diminution in venereal disease would have been greater had the

Acts remained in force and their sphere of usefulness been more widely extended."

The article on "Disposal of the Dead" is the joint work of Sir T. Spencer Wells, Bart., and Mr. F. W. Lowndes, Surgeon to the Liverpool Police. It is an able contribution to the subject, and includes a historical account of the different modes adopted by man for disposing of his dead from the earliest to the most modern times. The keynote to the views put forward is struck in this sturdy and uncompromising passage (page 674) :—"Man himself, in his omnivorous supremacy, is no exception to the general rule. In his material aspect he does as the rest of creation does. He lives to eat and destroy, as much as he eats to live. In life he is tenant at will of a variable proportion of organisable matter; in death he ought to render it back into the common stock for the use of others, without in any way barring the succession. If he interfere artificially with the natural course of events among the elements of his mortal covering, either retarding development or impeding dispersion, it is an act of vicious perversity. It is his privilege, if he choose to use it, to improve the one and to accelerate the other. We shall see how he falls short of this. Civilised he is synthetically but a bungler; analytically, his interference has been almost criminal."

Needless to say that cremation is *the* mode of disposing of the dead which the authors advocate. They point out that the revival of the practice in England and its spread upon the Continent and in America constitute a purely scientific movement. The opening of a crematorium at Manchester, the erection of a columbarium in Kensal Green Cemetery, and other circumstances, justify the conclusion that old prejudices are dying out, that the sanitary benefits of cremation are becoming appreciated, and that a rapid extension of the practice may in coming years fairly be expected. "That such may be the case is most earnestly to be desired in the interests of morals, health, and economy; and it is not unreasonable to anticipate that Government may recognise and regulate cremation, as well as enforce the rule of single-grave burial upon those who still prefer burial in the earth."

A description follows of the arrangements for cremation at Woking, and of the present standing of cremation abroad.

We may mention that this article is divided into two parts, and that there is internal evidence to prove that Sir Spencer Wells is chiefly responsible for the first part, Mr. Lowndes for the second.

"The Medical Officer of Health" is the title of the closing monograph in the present volume. It has been written by Mr. Alfred Ashby, M.B., F.R.C.S., Medical Officer of Health of Reading, and is a careful and painstaking piece of work. At the outset Mr. Ashby shows that he is master of his subject, for he says that in discussing the duties of and matters relating to medical officers of health it is necessary, in respect of some, to distinguish them in accordance with the several parts of the United Kingdom, whilst others are common to medical officers of health in all parts of it. Towards the close of the article the arrangements peculiar to Scotland and Ireland are given, so that all necessary information is forthcoming for each division of the kingdom.

In concluding this notice, we have again to congratulate the editors on the way in which they have discharged their functions. With singular tact and skill, and in a spirit of self-effacement as grateful as it is rare, they have brought out a second instalment of a great work—a literary masterpiece which adequately represents British Hygiene as it stands in the closing decade of the nineteenth century.

Diseases and Injuries of the Teeth, including Pathology and Treatment. A Manual of Practical Dentistry for Students and Practitioners. By MORTON SMALE, M.R.C.S., L.S.A., L.D.S.; Dental Surgeon to St. Mary's Hospital; Dean of the School, Dental Hospital of London; Member of Board of Examiners in Dental Surgery, Royal College of Surgeons, England; and J. F. COLYER, L.R.C.P., M.R.C.S., L.D.S.; Assistant Dental Surgeon to Charing Cross Hospital, and to the Dental Hospital of London.

THE authors of this book have rendered an important service to dental literature in having compressed such a mass of matter within its covers. The general scheme of the book shows from what a practical standpoint they have viewed the subject, tabulating the different forms of affections of the teeth, and their several modes of treatment. Many most valuable hints are here and there to be found, such as those with regard to the treatment of deciduous teeth, the treatment of irregular ones, and the recent methods of treatment of the dental pulp. They evidently know the value of illustrations in such a practical treatise as this of

which the book is so full, especially those in abnormalities of the teeth and their mechanical treatment, giving the student several new ideas as to how similar cases can be carried out.

Besides the copious chapters on tooth-extraction and tooth-filling, the authors have taken great pains over the pathology of the several dental tissues. In fact there is hardly a subject on surgical dentistry they have not touched on. Indeed, the experienced practitioner will find many useful hints, and the work leaves little to comment upon, and nothing to criticise.

Essentials of Minor Surgery, Bandaging and Venereal Diseases, arranged in the form of Questions and Answers. By EDWARD MARTIN, A.M., M.D. Second Edition, revised and enlarged, with 78 illustrations. Philadelphia : W. B. Saunders. 1893.

In this well-printed and copiously-illustrated booklet of 166 pages a vast deal of information is placed before the student in simple question-and-answer form, and in the very clear, and sometimes slightly racy, style which characterises so much of the scientific literature of our American cousins. Bandages, knots, sutures, antiseptics, anaesthetics, counter-irritants, cupping, leeching, transfusion, hypodermic medication, fracture-dressings, luxation, gonorrhœa, syphilis, and some smaller subjects, are included in this surgical catechism. The illustrations are extremely clear; the greater proportion are given in the section on Bandages, which, with their help, is made extremely instructive indeed. The *Answers* to the various questions in this section are necessarily short, and, accordingly, the mode of application of some of those bandages of which the descriptions are not accompanied by woodcut figures cannot well be understood. The account of the "four-tailed bandage," on page 49, is one of the poorest.

The author deals more fully with the symptoms and treatment of gonorrhœa and syphilis. Some of the information is rather naïvely expressed. For instance, on page 130, under the heading of the question—"What is the Treatment for Acute Anterior Urethritis?" we are told that, "Prolonged and repeated coitus has a marked influence in encouraging the entrance of the gonococcus into the urethra." The inference is obvious: "Hence, a brief contact is desirable from a prophylactic standpoint." A great deal of information is given on the subjects of the complica-

tions of syphilis, on chancroid and chancre, and on the various lesions which occur in the several stages of syphilitic disease.

On the whole, we cordially recommend this little volume to the student for simple clearness of language, wide range of information, valuable practical hints in diagnosis, and a very considerable accumulation of prescriptive remedies, of the use of mechanical appliances, and of manual dexterity.

Heath's Practical Anatomy: A Manual of Dissections. Eighth edition. Edited by WILLIAM ANDERSON, F.R.C.S.; Surgeon and Lecturer on Anatomy at St. Thomas's Hospital; Professor of Anatomy at the Royal Academy of Arts; Examiner in Anatomy for the Royal Colleges of Physicians and Surgeons. With 329 engravings on wood. London: J. & A. Churchill. 1893.

We are glad to welcome a new edition of our old friend, "Heath." He was our own dissecting-room guide and faithful counsellor in the days of our professional innocence, and the deserved popularity which the name has attained is the best testimony to the fact that the guidance has been found reliable by many thousands of medical students as well as ourselves. The present issue is thoroughly "up to date." We thought on taking up the volume that there was no increase in matter, but found on examination that 150 pages of additional text have been prepared, while the former bulk has been pretty accurately preserved by the deserved omission of the somewhat ornamental, but not very useful, plates of arteries which had been prefixed to each of the last three editions. Some text illustrations have also been evicted, chiefly those of the histological type, which are of slight use in a dissector's manual; but their place is more than well supplied by the introduction of nearly a hundred new woodcuts, "some original, and some borrowed from other works," which are much more appropriately located.

Mr. Anderson shows in his Preface to this edition that the work "has been subjected to an extensive revision in order to bring it to a level with current teaching and the present requirements of the Examination Boards." In keeping such a standard before him he has but done his duty to the sadly overtasked medical student of the period, and we can well congratulate him on the result to which he has attained. Nothing of importance has been omitted. "The more recent progress in topographical anatomy"

has necessitated important additions in this department, and we have been greatly pleased with the selective concentration of material, clearness of textual description, and judicious employment of illustration, which are displayed in the whole of the new matter. Very special attention has been given to the topography of the abdomen, and we cannot give too high praise to the editor's treatment of this part of his subject. The section on "Cranio-cerebral Topography" is also one to which the critic will naturally turn when endeavouring to form an opinion of the value of the pretensions to scientific reliability claimed for a text-book like the present. This section is judiciously short, and, like all other parts of the text of the volume before us, is written in a style of crystalline clearness. The editor in mapping out the situation of the surgically important regions of the brain has preferred, very naturally, the rules laid down by Messrs. Anderson and Makins. They are as reliable as any of the other numerous methods which have been suggested.

In the case of a volume so well known to the medical-student public as Heath's Anatomy, it would be really idle to go into critical details in a notice like the present. It will, we trust, satisfy our readers to know that, for portability of size, readability of type, clearness of thought and diction, judicious concentration of matter, reliability of description and profuse and well-chosen illustration, we know of no manual equal, or even qualified to form a good second, to our old friend, "Heath."

The Hygienic Prevention of Consumption. By J. EDWARD SQUIRE, M.D., London; D.P.H. Camb.; Physician to the North London Hospital for Consumption and Diseases of the Chest. London: C. Griffin & Co. 1893. Pp. 194.

THIS work is divided into three sections—I. The nature of consumption, the bacillus of tubercle, the symptoms of consumption, the modes in which the disease is communicated to healthy individuals, the meaning and varieties of predisposition, and the frequency with which consumption follows certain diseases, and occurs among those engaged in certain occupations. Part II. treats of the prevention of the disease, school life, profession, clothing, diet, and exercise; also of the measures to be taken to prevent the disease spreading in a family in which one member is already the subject of the disease. Part III. treats of the curability

of consumption, and of the climatic treatment of it. This section ends with another account of the symptoms of the disease.

No more important subject could be chosen whereon to write; it is in our opinion a very great pity that Dr. Squire has not written more briefly, and in a more attractive style. It is really to the general public, and not to the medical profession that a work on the prevention of consumption should be addressed, and we fear that the work before us will be found too long, too diffuse, and too heavy to be very widely read. Even from a medical point of view it is badly arranged, and suffers from frequent repetitions—thus, the symptoms of the disease are described at the beginning and again at the end of the book; the necessity of destroying sputum, and not depositing it in handkerchiefs is repeatedly alluded to.

The style is too technical and too full of matters of purely medical interest to make it agreeable to the ordinary lay reader, while it does not contain anything which an ordinarily educated physician might not be reasonably expected to know.

We wish that the information contained in this work was spread widely through the nation; we wish that, in the care of infants and of adults, in the choice of houses and of schools, in the regulation of clothing and of exercise, the British public would pay more heed to what Dr. Squire writes; but we fear they will not be attracted to this work.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army—Authors and Subjects. Vol. XIV.—Sutures—Universally. Washington: Government Printing Office. 1893. Quarto. Pp. 1016.

THIS great work is drawing to a close. The present volume carries us to the word "Universally," and therefore within measurable distance of the end of the alphabet. The present volume includes 10,124 author-titles, representing 6,426 volumes and 8,850 pamphlets. It also includes 9,867 subject-titles of separate books and pamphlets, and 38,461 titles of articles in periodicals.

The Index-Catalogue, as far as published up to the present, contains 157,453 author-titles, representing 77,494 volumes and 135,656 pamphlets. It also includes 151,649 subject-titles of separate books and pamphlets, and 462,165 subject-titles of journal articles.

To Dr. John S. Billings, Surgeon, U.S. Army, the medical literary world is again indebted for an instalment of the most comprehensive Index-Catalogue in existence. We wish him continued health for the completion of the gigantic task set before him.

Transactions of the Pathological Society of London. Volume the Forty-fourth. London: Smith, Elder & Co. 1893. Pp. 242.

THE annual volumes of the Transactions of the Pathological Society are chiefly valuable as being a storehouse, whence future generations of medical men may acquire illustrative cases, bearing upon rare and important pathological conditions. They also indicate what subjects have, during the past year, most vividly exercised the minds of pathologists. When we examine Volume XLIV., with a view to gain information on this point, we are led to the conclusion that the most interesting subject of the year has been the question of the relation of animal parasites to cancers—its longest, most elaborate, and best illustrated papers are on this subject. Dr. Jackson Clark contributes a "Critical Survey of recent Work bearing on the Pathology of Cancer and Sarcoma" from the parasitic point of view. It is chiefly remarkable for the number of the writers from whom he quotes; from the completeness of its bibliography it will prove of much value to the investigator of this subject. Dr. Armand Ruffer and Dr. R. Boyce contribute each an important paper, illustrated, the one with coloured drawings, the other with photographic reproductions, but each with equal beauty, in which the former maintains the parasitic nature of certain structures, while the latter adheres to the theory of endogenous cell formation. Dr. Hebb also communicates a beautifully-illustrated paper on "Cancer-bodies" in a case of diffuse subperitoneal fibrosis. In this case the character of the tissues in which these "cancer-bodies" were found, was inflammatory, and could not histologically be called carcinomatous.

There are three interesting papers on that rare affection, "Subperitoneal Fat Necrosis." Dr. Rolleston in his paper suggests that the change may be trophic in nature, and due to disturbances of the abdominal sympathetic, which is shown clinically by symptoms like those of intestinal obstruction and collapse; and that in this way fat necrosis is secondary to pancreatic lesions.

There are many other excellent papers in this volume, and this year's "Transactions" is quite up to the high standard of its predecessors.

We are glad to see from the Annual Report that the Society is in a most flourishing state.

Diseases of the Skin : An Outline of the Principles and Practice of Dermatology. By MALCOLM MORRIS, Surgeon to the Skin Department of St. Mary's Hospital, London; Corresponding Member of the K. K. Gesellschaft der Aerzte in Wien, of the Wiener dermatologische Gesellschaft, and of the Société Française de Dermatologie. With 8 chromo-lithographs and 17 woodcuts. London : Cassell & Company, Limited. 1894.

THIS excellent text-book of 556 pages is one of the most valuable of the recent additions to Cassell & Co.'s series of "Manuals for Students of Medicine." It is the handiwork of an acknowledged master of the subject with which he has undertaken to deal. We congratulate him most warmly on the result of his efforts, and feel sure that it will add to the lustre of his already cosmopolitan reputation. As the preface tells us, "The work is essentially clinical and practical in its scope, and for more extended details of mordid anatomy the reader is referred to larger treatises on the skin."

The text is arranged in twenty-three chapters, and is followed by an excellent Index, which occupies ten pages. The contained information is conveyed throughout in language of clear, unpretending simplicity. The author everywhere speaks with the easy diction, and the unassuming confidence in his own convictions, which form the unmistakable characteristics of a teacher who knows his subject, both theoretically and practically. There is no more use of abstrusely technical phraseology than is absolutely necessary for a fair concentration of language ; and the aggravating "dead dogmatism, which oppresses or raises opposition" is conspicuously absent—a specially meritorious feature in a work by the hand of a specialist whose personal experience would give him a fair claim to the employment of some clinical egotism.

The first chapter gives a short introductory account of the pathology—including, of course, the bacteriology—of the skin. The second is concerned with "Classification" of cutaneous

diseases. The author mentions the classifications adopted by Plenck, Willan, and Bateman ; then passes over as "absurd" the one adopted by Joseph Frank, to come to that of Erasmus Wilson ; and he ends with Hebra's. We feel some mental refreshment on finding that, "In the present work no formal scheme of classification is propounded, but the attempt is made to group the diseases described in accordance with the tendency of modern pathological research—that is to say, etiologically." This, we venture to think, is a praiseworthy attempt to break off the hampering fetters which so often bind the thoughts and expressions of medical writers to the hoary traditions of the professional "fathers." "The lines followed are mainly those traced out by Unna, in his arrangement of subjects in the *Monatshefte für praktische Dermatologie*." As the author very truly observes, "The progress of medical science lies almost entirely in the discovery of causes. As this becomes known, fresh groups of diseases will naturally be formed." Accordingly, the cutaneous lesions which owe their origin to disorder of the nervous system are made to form one class ; those dependent on irritation—external or internal—a second ; those caused by medicinal substances, a third ; parasitic diseases, a fourth ; inoculable (constitutionally or locally), a fifth ; while those whose aetiology is acknowledged to be obscure or unknown are left unclassified. We consider this arrangement to be by far the most scientific in theory, and the most practical in leading up to the all-important consideration of treatment.

The body of the work is characterised by the same soundly practical views which characterise the opening chapters. The volume is thoroughly "up to date," and we have noticed no serious omissions. The enormous number of headings which require discussion in the course of a small volume, necessarily limits the space to be given to the consideration of each ; but even in those cases where the notice is shortest, the author's judicious selection of the most important salient points to which attention should be directed, and his concentrated clearness of diction, have enabled him to lay before the student the best landmarks to be referred to in diagnosis and treatment.

In the space of a short review like the present it is, we think, undesirable to attempt to select for special criticism any of the vast number of topics which are treated in a comprehensive textbook of cutaneous diseases. We will merely conclude by saying emphatically, that we think the manual before us fully equal in

reliability, and far superior in convenience of portability and reference, to any treatise that we know of already existing in the English, or, indeed, in any other language.

Myxædema, and the Effects of Climate on the Disease. By A. MARIUS WILSON, M.D., B.S. Durham. London: The Scientific Press, Limited. 1894. Pp. 36.

THE author believes that the accounts of this disease in the dictionaries of medicine and in the ordinary text-books are somewhat antiquated, and that the accounts of cases in the journals are necessarily fragmentary. He, therefore, has written an account of it very similar to what we are already accustomed in the "antiquated" text-books, with this addition, that in discussing the pathology of the disease he ascribes it to an atrophy of the thyroid gland, the result of which is that an insufficient quantity of thyroid secretion is taken up by the blood in its passage through the thyroid blood-vessels. Till we read this work we thought that in health the thyroid secretion was largely taken up by the lymphatics, and through them conveyed to the blood. The author, however, never mentions lymphatic vessels at all. There is a very brief and incomplete account of the treatment by the administration of sheep's thyroids internally.

The author thinks that this book will be of use to a certain class of men whose exact chronological position we confess we cannot understand. He hopes it will be of service to those who had left their *Alma Mater* in the "pre-Myxædematous revival era." We have studied this phrase with anxious care; it seems to us to refer to some who were born under a less-favouring star than was Dr. A. Marius Wilson; and we have concluded that in the kindness of his heart he has not wished openly to refer to these unhappy individuals, but has chosen to hide their identity under this cabalistic, ungrammatical conundrum.

One other feature in this work calls for comment, and this we commend to those who wish to make a little writing go a long way; it is printed on the thickest paper we have ever met with in a medical work.

PART III.

SPECIAL REPORTS.

REPORT ON NERVOUS AND MENTAL DISEASE.*

By RINGROSE ATKINS, M.A., M.D.; Resident Medical Superintendent, District Asylum, Waterford.

(Continued from page 67.)

III. NEURO-PATHOLOGY AND PATHOLOGICAL ANATOMY.

Neurasthenia and Melancholia.—In a paper presented in a competition for the Esquirol Prize, 1892, and “couronné,” by the Soc. Méd. Psychologique (abstr. in *Journ. de Méd. de Paris*), M. Boissier has treated of the relations of neurasthenia with depressive insanity.

Among sixty cases studied by him he made use of only those who showed the least hereditary taint, and who came nearest to the pure melancholic condition without hypochondria or persecutory delusions. He classified them as nearly as possible according to their graduation, from the neurosis to the psychosis. After a rapid review of the present state of our knowledge he points out the analogy of the aetiological conditions. A succession of causes, or the continued action of one, produces first the neurasthenia, and then the melancholia as a stage of aggravation. But if there exists a sufficient acting cause to produce melancholia at first, he asks if we should not see in this only a more intense type of the same morbid condition, such as is so frequently observed in other disorders. In fact, examination of acute cases of melancholia reveals all the physical and psychic symptoms of the two disorders, but in a more intense degree than the ordinary chronic cases.

Passing next to the physical phenomena the author proposes

* The author of this Report, desirous that no contribution to the subject of Nervous and Mental Disease should remain unnoticed, will be glad to receive any publications which treat of it. If sent to the correspondents of the Journal they will be forwarded.

the following questions—What becomes of the stigmata of the neurosis when the psychosis is established? Do they yet exist? Those that seem gone or modified, are they only hidden or exaggerated by the process that has given rise to the aggravation of the symptoms?

In depressive melancholia, he answers, all the symptoms of nervous exhaustion may exist and be combined in the same patient. Some, however, are aggravated, others unchanged, others still are modified or diminished by the immobility imposed by the psychosis.

As regards the physical characters, the general resemblance of the two conditions is such that it is difficult to certainly point out the difference, at least as a general rule. Stuporous melancholia is, after a fashion, the crystallisation of the neurasthenic condition. The patient falls into a condition of absolute abulia, and loses all his energy; he scarcely reacts at all to external impressions, and is wrapped up in his automatic sensations, and fixed impressions that form the central point of his insanity.

The author next treats of psychic asthenia. The distress and extreme emotivity of the neurasthenic are, with his general lack of energy, the factors of his timidity, and lack of self confidence. This emotivity may sometimes escape observation in melancholia, but it exists nevertheless, though with less pronounced manifestations, and is the less apparent the more depressed the patient. The outward signs, the facial expression, &c., are, to some extent, lacking. The irritability of the subject has suffered with the general depression, and the automatic reactions themselves have lost their activity. Some of these patients still dread any intercourse with strangers, and to such an extent that their tremor is noticeable even in stuporous cases. In others one can still note by the pulse, the cardiac irritation produced by emotion, or the flushing of the brow in inert and mute individuals is, perhaps, the only indication. In the anxious hyperesthetic forms on the other hand, where the depression is not so profound, the emotivity predominates, and the least external manifestation, or internal phenomenon, arouses in the subject the most terrible distress.

The general diminution of all the energies leads to a general prostration, and, in a higher degree, it produces that stupor without delusions or ideas, without any cerebral activity what-

ever, which should be distinguished from the apparent stupor with terrifying delusions. If the unequal failures of the various energies of the faculties form, according to their groupings, the different types of the disease, the equal general deficiency of the whole, but varying in its intensity, makes the difference between the sufferer from simple, depressed nervous exhaustion and the melancholic. The one is a paretic, the other a paralytic.

After reporting fifteen observations in detail, and summing up his memoir, M. Boissier formulates the following conclusions:—Neurasthenia is a morbid entity, of which the constant symptoms—headache, insomnia, distress, tachycardia, disorders of general sensibility, depression—are in relation with those of melancholia.

Motor Disorders in Neurasthenia.—Pitrès (of Bordeaux) read a paper on this subject before the Medical Section of the French Association for the Advancement of Science, Sept. 21, 1892, which is reported in *Le Progrès Médical*, No. 40. He called attention to certain neurasthenic symptoms that have, he claimed, been wrongly attributed to hysteria. Tremor, he said, the most important of these, exists in two-thirds of the cases of neurasthenia. It is identical with that of exophthalmic goitre, is observed in the limbs, is fine, vibratory, and is apparent in the speech. It resembles the so-called alcoholic tremor, and is one of the better signs of this neurosis. The other motor troubles are less frequent; they consist in cramps more frequent by day than by night, without fatigue or apparent cause, which sometimes embarrass locomotion, and in muscular contractions which resemble those of paramyoclonus multiplex. Rhythmic spasms of the neck, of the tongue, diaphragm and contractures of the oesophagus are specially symptomatic of neurasthenia. Abasia may occur in neurasthenia and in persons showing no indications whatever of hysteria. Intermittent claudication occurs in neurasthenics. A precocious fatigue of the arm, absolutely disproportionate to the work performed, and causing momentary paralysis was observed in one patient. In the same case the knee-jerk was absent, and when this occurs with Romberg's symptom there may be a neurasthenic pseudo-tabes. Eight or ten times the pupils were quite sensitive to light and refractory to accommodation—the reverse of the Argyle-Robertson sign.

Neurasthenia is more persistent than hysteria, and its accidents

are harder to cure. It cannot be treated like hysteria by hypnotism.

Is Katatonia a special Form of Mental Disorder?—Dr. J. M. Nolan, of the Richmond Asylum (lately appointed Medical Superintendent of the Downpatrick Asylum), read a paper on this subject before the Medico-Psychological Association at a meeting in Dublin, May 26, 1892. He accepts Spitzka's definition—"a form of insanity characterised by a pathetical, emotional state, and verbigeration combined with a condition of motor tension," with the addition, "running a *quasi* cycle course of expansion, hysteria and stupor." He would limit the use of the term strictly to those cases which fulfil all the conditions of this definition, and does not think that the fact that some of the symptoms of the cataleptic stage may so far colour other forms of mental disorder as to justify the term "Katatonic," detracts from the value of the specific term. He recognises four stages--depressed, emotional, convulsive, and stuporose.

The depressed stage comes on insidiously, and is characterised by a passive, drowsy, mental state, with grotesque visual hallucinations, not always of an unpleasant nature, and delusions of a mixed sexual, religious and persecutory type, which do not excite emotional disturbance in proportion to their apparent intensity. It is accompanied by anaemia, vaso-motor fluctuations, general wasting, masturbation and trophic lesions. The patient usually comes under treatment in the emotional stage in consequence of some violent outburst due to his hallucinations and delusions. The intensity of the emotion, however, soon subsides, and the "emotions evoked become pathetic, the pseudo rather taking the form of silly and shallow exhibitions of feeling, with a strong colour of religious and erotic delusion. Theatrical and declamatory speeches and attitudes are struck to give emphasis to the most common-place remarks with an effect so ludicrous that the patient commonly breaks down into a laugh, as if realising the complete absurdity of his bombastic utterances." In this stage is developed the symptom "verbigeration"—the declamatory repetition of utterly meaningless phrases, words, and syllables. This stage passes gradually into that of the stuporose, which may vary greatly in duration and intensity. It differs from that of cataleptic melancholia, in that the hallucinations, although they may be disagreeable, are not terrifying, and may be pleasant. A rigid resistance to passive

movements is more common than "flexibilitas cerea." Vaso-motor disturbances are not so extreme as in other forms of stupor, and food is generally taken when offered. The nutrition may improve in this stage.

With respect to aetiology, Dr. Nolan believes general degenerative changes and hysteria to be at the bottom of the morbid states. Although he admits the importance of masturbation and sexual excess as exciting and aggravating circumstances, he does not believe them capable of any such effect in a person of originally sound organisation. In regard to the former practice he says: "From a very extensive experience of all classes of youth, sane and insane, I have found that the injurious effects of the vice named were infinitesimal in proportion to its almost universal practice." Women are comparatively exempt from this form of mental disorder.

The author does not think that any satisfactory anatomical basis has yet been found for the mental disturbances in this as in most other forms of insanity. He questions the importance of the changes reported by Kuhlbaum and others; personally he has had no opportunities for autopsies in such cases. He is inclined to suspect that defective working of the connecting fibres between the various centres concerned in speech may have quite as much to do with the peculiar disturbances of that function as disorder of the centres themselves.

The author reports five cases illustrating various phases of the malady.

Auto-Intoxication as a Factor in Mental Disorders.—At the La Rochelle meeting of the French Congress of Mental Medicine, August 1st, 1893, a report was made by MM. Régis and Chevalier Lavaure on the subject of auto-intoxications and their relations to mental medicine, the substance of which is thus given in the columns of *Le Progrès Médical*, No. 31.

The authors first recalled the three great causes of intoxication that may result from disorders in the nutrition of the organism; (1) abnormal productions of toxic matters; (2) incomplete transformation of those introduced into the organism; (3) insufficient elimination of normal and abnormal poisons—whence auto-intoxication.

They next reviewed briefly the history of investigations on this question from the ancient humoral theories down to the studies of Seleni and Gautier, of Bouchard and his school in

France. The toxic principles need to be determined and recognised, chemically and experimentally, in the normal system as well as in disease; products of cell life of our tissues or of parasitic microbean cells, these alkaloids (leucomains or ptomaines) are chiefly eliminated through the kidneys, therefore they have been mainly studied in the urine and its extractive products.

It is by means of intravenous injection that the great rules of experimentation have been determined, account being taken of the time passed during the injection, and of the body-weight of the animal experimented on, in comparison with the quantity injected. But the toxicity of the urine is in inverse proportion to that of the serum, and the other products of the physiological secretions and excretions.

The elements of the poisoning of the organism are, therefore, multiple: besides the toxalbumins, proteins, diastases, etc., we must take account also of the mineral substances—potassium, sodium, acids. As Bouchard says, man is the receptacle and laboratory of poisons. Applying these facts to psychiatry and neuropathology, the authors state the following conclusions: (1) The toxicity of the urine is notably diminished in maniacal and augmented on the contrary in melancholic conditions. Further, the urine of maniacs and that of melancholiacs have different actions on the animals in whom they are injected: the former causing chiefly excitation and convulsibility, and the latter depression, inquietude, and stupor: a positive proof that auto-intoxication is the cause and not the effect of the mental state, as has been often verified in certain auto-toxic maladies, eclampsia for instance. We often find in insanity an inverse toxicity of the urine, and the blood, in mania especially, is as much more hypertoxic as the urine is hypotoxic.

(2) These results which, incomplete as they are, show by their almost perfect concordance that the phenomena of auto-intoxication play an important part in mental diseases are confirmed by recent nosological investigations on the insanities of the acute infectious diseases, and those of the visceral and diathetic disorders. As far as the psychoses of the infectious disorders are concerned, they are the result either of the direct action of the microbes or of their mediate and indirect action through the toxins they secrete. In a clinical point of view, they may present themselves at two different periods, and

consequently under two different aspects. During the febrile stage they ordinarily take the form of an acute delirium. During the post-febrile stage, or during convalescence, we have the so-called asthenic psychosis, a more or less variable mental condition, consisting usually of a mental confusion, stupidity, clouding of the faculties, a pseudo-dementia: possibly it will be proper to admit the existence of a third form intermediate between the two preceding.

The visceral psychoses are also undoubtedly due in large measure to auto-intoxication. They are even, to speak truly, genuine insanities from auto-intoxication.

We may say that where the intoxication is acute it habitually shows itself as an acute toxic delirium, resembling alcoholic delirium (this is the case with uræmic insanity): when the intoxication is slow and chronic, it ordinarily induces a melancholic condition: lastly, we may see cases recalling more or less paretic dementia.

The diathetic psychoses, although included in the insanities from auto-intoxication or infection, have not been the subject of extensive studies. During the acute episodes these attacks also take on the type of acute toxic delirium; these attacks seem to correspond to variation of composition of the organic liquids (uric acid discharges preceding the end of the attack, and urinary hypotoxicity).

General or local anti-infectious antiseptic treatment—and this is a powerful argument in favour of the toxic origin of these disorders—gives here excellent results. Although it is not possible to formulate a definite therapeusis, there are, nevertheless, enough facts to show that in the infectious or auto-toxic insanities we must resort to the treatment of the infection or the auto-intoxication to relieve the mental disorders.

In the discussion which followed M. Séglas reported observations of fourteen cases of mental derangement, in which there seemed to be a direct connection between an auto-intoxication and the disorder. In all these the clinical type was that of primary simple or hallucinatory mental confusion passing to simple mental torpor, or to complete stupor. Simultaneously there were somatic disturbances of various kinds. M. Séglas concluded that, in all the observations of the nature of the occasional causes, the identical symptomatology and the action of certain therapeutic agencies seemed to plead in favour

of the auto-intoxication hypothesis; its absolute demonstration could not be said to have been made. Chemical and experimental results are as yet uncertain and incomplete. The question is only opened upon, and is yet very far from settlement.

The subject was further discussed by MM. Charpentier, Legrain, and others in favour of the theory of auto-intoxication.

Histology of the Nervous System in Paralysis Agitans and Senility.—Ketscher (abstract from *Zeitschr f. Heilkunde*, Bd. XIII., H. C. 62) has examined the central nervous system in three cases of paralysis agitans. In all there were morbid changes—the specific elements showed atrophy of varying degree; the cerebral ganglion cells were strongly pigmented, rounded, and here and there in a state of granular degeneration: the spinal nerve fibres, especially those in the posterior columns, were degenerate and atrophied, and had completely disappeared here and there, so that holes were present; the same condition was observed in the peripheral nerves. The interstitial tissue in cord and peripheral nerves was much increased. The vessels were much altered, the walls thickened, miliary aneurysms were found here and there, together with small haemorrhages: the adventitious sheaths were seen to be bulging in places, and the bulgings filled with round cells and lymph. These changes are similar to those described by other authors. Conjecturing that they might be due merely to senility, Ketscher examined the nervous system of ten old persons free from paralysis agitans. He found changes which did not differ qualitatively at all from those present in the cases of paralysis agitans, though they were less marked. Ketscher is, therefore, of opinion that this affection is merely the expression of unusually pronounced and possibly premature senility. He believes that the blood-vessels are primarily the nerve elements secondarily involved.—(*Am. Journ. of Insanity*, Oct. 1893.)

[In estimating the pathological import of changes such as those above described, the possibility of their being sequential to the primary disease, and brought about by the *vis inertie* imposed upon the organism by that disease, must be carefully excluded; certain of these changes also may be produced artificially by the methods used in preparing specimens for examination.—*Rep.*]

Post-mortem appearances in a fatal case of Progressive (Hereditary

so called Huntingdon's) Chorea.—Drs. Kronthal and Kalischer found the following pathological appearances in a case of this malady. The patient became choreic in her thirtieth year, and remained so until her death, at the age of forty-five. There was a strong family history of chorea. 1. Dura mater strongly adherent to skull cap, especially over the frontal region. 2. Adhesions between dura and pia. 3. Extensive rind-like thickening of the pia with small cell infiltration, and much vascularity; also formation of lamellæ in the parts of the membrane covering the convexity of the brain, and the front boundary of the spinal cord. 4. Adhesion of pia to cerebral cortex, especially in the frontal region and over the central gyri. 5. Slight atrophy of frontal lobe, with marked narrowing of the gyri (presumably frontal; this not stated). 6. Much vascularity of the cortex, some vessels having their walls thickened, and small-celled infiltration round the walls. 7. Holes in the lenticular nucleus (presumably produced by falling out of blood-vessels or secondary haemorrhages). Blood extravasation and pigment deposit about the vessels here; vessels blocked by organised clot. 8. The nucleus tegmenti of one side almost devoid of cells and nuclei. 9. Blood extravasation about the point of exit of the third nerve fibres. 10. Scattered points of degeneration in the crura cerebri. 11. Sclerotic foci in the grey matter of the ventricles. 12. Slight unilateral degeneration of the facial and hypoglossal nuclei, and degeneration of the ascending root of the fifth, and the nucleus piniculi teretis of one side. 13. Diffuse degeneration of the pyramidal tracts of pons and medulla. 14. Slight diffuse degeneration of lateral and anterior columns of the entire cord, as far as the lumbar region, degeneration of the inner part of Goll's columns in the lower cervical and upper dorsal regions. 15. Slight degeneration of the cells of the anterior horns of those of Clarke's columns and of the anterior spinal roots. 16. Circumscribed sclerosis in the commissure between the central canal and one anterior horn, in the mid-dorsal region. 17. Deficiency of chromatogenous substance in the ganglion cells of the cerebral cortex. 18. Very slight degeneration of the peripheral nerves.

The authors are not prepared to express an opinion concerning possible causal connection between any of these morbid conditions and chorea.

Pathology of Muscular Atrophy in Hemiplegics:—The spinal

cords of two cases of hemiplegia with muscular atrophy were examined by Joffroy and Achard (*Arch. de Méd. Exper. et d'Anat. Path.*) In the first, which had lasted for two years, only slight changes were found in the cells of the anterior cornua; in the second, of 27 years duration, they were decidedly atrophied. On the ground of these and similar cases the authors reject the theory that atrophy in such cases is due to neuritis, or to disturbances in cortical trophic centres, and believe that there is invariably an alteration of cells of the anterior cornua under the influence of the diseased pyramidal tracts. The contractures they consider as evidence of irritation of these cells. If exhaustion takes place the result will be atrophy of muscles whether or not there is demonstrable lesion.—(*Am. Journ. of Insanity.*)

IV. NEURO-THERAPEUTICS.

Nervous Transfusion in Insanity—Cullere (*Gaz. de Paris* Aug. 27, 1892) reports eight cases of insanity, nearly all in a critical physical condition, and several in one mental and bodily hebetude, in whom he practised the method introduced by M. Constantin Paul, of injecting hypodermically a preparation from the grey matter of the sheep's brain. He macerated the fresh brain substance from an animal recently killed, for twenty-four hours in twice its weight of pure glycerine, then adding an equal quantity of boiled water he obtained by filtration, a preparation of the strength of one fifth. The injections were invariably four grammes (3*i.*) of this liquid, which was renewed every week, and were given at intervals of two days, the selected points for their insertion being the flanks or the dorso-lumbar region. The spot chosen for the injection was previously washed with a strongly carbolised water, and the syringe was carefully disinfected. Although he did not use Arsonval's method he claims that his precautions were such that in over five hundred injections there was not a single accident of any kind.

In all the cases here reported there was a marvellous improvement in the physical condition, but the mental disorder was either only temporarily benefited or not at all. Six other cases were treated in the same way, three of them being melancholiacs who underwent a decided improvement as regards their appetite, &c. In one case of hydræmic cachexia of long standing the results were *nil*; the same was the case with a patient suffering from intermittent mania with pyloric cancer.

In one melancholiac there was only temporary improvement. The author sums up his conclusions in the following propositions.

(1.) Nervous transfusion (I advise what I have not myself been able to do, the employment of the procedure of Arsonval to insure the sterilisation of the liquid) is well tolerated in debilitated and even in tuberculous insane individuals, and arouses almost instantaneously the nutritive functions.

(2.) The first sign of this awakening was an improved appetite, which some patients are hardly able to satisfy. This particularity may be of great value in insanity in combating sitophobia, and I have been enabled to avail myself of it in many patients who had systematically refused food.

(3.) The reconstituent effects are rapid in appearance; the muscular weakness disappears, *embonpoint* develops, and all the organic functions become more regular.

(4.) The psychopathic condition in curable cases has been sometimes temporarily improved during the hours immediately following this injection, but this effect has never been lasting, and no permanent amelioration has been obtained. Nevertheless, I do not consider this as definitely settled, the majority of the cases treated not being such as allowed a favourable prognosis. It is the rule, in fact, that in cases of curable insanity, when the nutrition begins to improve, the mental symptoms also are modified in a parallel manner.—(*Am Journ of Insanity.*)

Vibrations in the Treatment of Nervous and Mental Disease.—M. Gillies de la Tourette, following the lead of M. Boudet, of Paris, and earlier observers, has experimented with the effect of vibrating on the nervous system. He has devised a sort of cap, made to conform itself to the shape of the cranium, with which, by means of a small electric motor, uniform, light and rapid vibrations may be made over the whole surface covered by the apparatus. The whole head vibrates, as can be felt by putting the hand on the mastoid process. A simple arrangement permits such regulation of the number and fulness of the vibrations as may be desired. Placed on the head of a healthy person, it causes no inconvenience or discomfort, but soon produces a sort of general benumbing, that is almost invariably followed by sleep. About ten minutes application in the evening was found to produce a good night's sleep. Eight or ten *séances* sufficed to relieve insomnia when not due to organic encephalic disease.

Three cases of neurasthenia were treated, two of whom were cured, and the third discontinued the treatment improved. The head symptoms disappeared, and that the method acts through the brain seemed to be shown by the fact that in a case where the spinal phenomena were predominant, the weakness of the legs, the sacral *plague* and the relative sexual impotence disappeared without having recourse to any spinal applications. In this patient static electricity had notably failed.

There seems to be, according to the author, no doubt that this method is a powerful sedative to the nervous system, and the suggestion is made that its effects may be advantageous in certain forms of mental disease. In one case of melancholia its use appeared to be decidedly advantageous in arresting the progress of the disorder that had before shown no signs of improvement.—(*Am. Journ. of Insanity.*)

The Surgical Treatment of Idiocy.—At the Session of the Congress of French Alieinists, Aug. 1892 (*Progrès Méd.*, No. 33), M. Bourneville read a paper on the surgical and medical treatment of idiocy. He exhibited eleven crania showing that in none of the types of idiocy to which M. Lannelongue applies indiscriminately the treatment by craniectomy are there any synostoses, and consequently the operation has no anatomical indication; it is useless, and the results so much vaunted are non-existent. One of the first patients operated upon by M. Lannelongue came later into the idiot department of the Bicêtre, where he died, and his cranium at the autopsy showed no synostoses. If the operation is not beneficial it is hurtful, as in this case there were found meningeal adhesions at the points of operation. It is, on the whole, better to keep to the medico-pedagogic methods, of which M. Bourneville exhibited some of the results. It is to this treatment, in part, that should be credited the transient betterment attributed to craniectomy; the patients' benefit by the attention they receive as surgical cases.

In reply to a question by M. Gilbert Ballet, M. Bourneville said he had never seen a case where development of the cranium was hindered by premature synostoses, but such cases had been reported.

M. Régis, in the discussion following, thought that M. Bourneville's paper was the more important since craniectomy was coming into fashion even in the provinces. He had himself seen one case operated upon without any good result.

A New Method of Treating Epilepsy.—Paul Flechsig adopts the following mode of treatment which he considers more efficacious than any hitherto employed. In the first place small doses of opium (powder or extract) are administered, and these are gradually increased in strength. The opium treatment is continued for about six weeks and then suddenly stopped, being replaced by bromide in large doses. At the end of two months the dose of bromide is gradually diminished and small doses are then taken regularly. The essential point of the treatment seems to be the sudden withdrawal of opium and its replacement by bromide. The former drug appears to prepare the way for the latter, and to render the bromide effect more intense. Fits are usually noticed to disappear shortly after the commencement of the bromide treatment. Flechsig at the conclusion of this the preliminary paper, reports a severe case of epilepsy in which this treatment was employed with striking success.—(*Neurol. Centralblt.*).

MALDEIN.

A NEW anti-rheumatic remedy, maldein, one of the coal-tar series, is recommended for acute and chronic articular rheumatism. Dr. Jacquet states that it produces neither headache, singing in the ears, vertigo, nor digestive troubles. Four to six doses of 15 grains each are given daily. The gastric juice decomposes the chemical into salicylic aldehydes and phenacetin. It exerts little influence on neuralgia.—*Répertoire de Pharmacie*, No. 10.

GUAIACOL.

GUAIACOL administered hypodermically is stated to reduce the temperature by $2\cdot3^{\circ}$ C., the effect being produced very gradually. Five minutes after the injection the patient felt the taste of guaiacol in the mouth, and in an hour's time the drug could be detected in the urine.—*Les Nouveaux Remèdes*, No. 17.

URINE.

M. CARLES, in *Répertoire de Pharmacie*, No. 9, contributes an interesting article on the variations of diurnal and nocturnal urine, pointing out some well-marked differences in the secretion taking place during the day and during the night in diabetic and other patients. He recommends that the whole amount of urine passed in the twenty-four hours should be mixed, and then a sample taken for analysis. There is nothing new in this idea, but he is deserving of thanks for producing evidence of the differences that occur during the twenty-four hours in urine.

PART IV. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—GEORGE H. KIDD, M.D., F.R.C.S.I.
General Secretary—W. THOMSON, F.R.C.S.I.

SECTION OF MEDICINE.

President—WALTER G. SMITH, M.D., President of the Royal College
of Physicians of Ireland.

Sectional Secretary—A. N. MONTGOMERY, M.R.C.P.I.

Friday, November 17, 1893.

The PRESIDENT in the Chair.

Clinical Notes.

The PRESIDENT, Dr. Walter Smith, brought forward some clinical notes
of recent cases.

He first showed photographs of a case of elephantiasis of the left leg
in a young man, aged twenty-five, and also of another case which had
been successfully operated on by Dr. Ball by excision of wedges of tissue
from the limb. The results of the operation were most successful.

The next case was one of inflammation of the right breast, in a woman
aged thirty, and in the 4th week of enteric fever. The inflammation
resolved quietly in a few days, and Dr. Smith regarded the mastitis as
probably analogous to the cases of parotitis or orchitis which occasionally
complicate enteric fever. The complication of mastitis had not, to Dr.
Smith's knowledge, been previously recognised.

The third case was one of aortic patency. The special point about it

was the occurrence of a powerful and diffused thrill accompanying the diastolic murmur. This is a rare occurrence, and Walshe met with it only once.

The last topic introduced was the question of the early diagnosis of scarlatina, and the difficulties that beset it. Some illustrative cases were narrated, and it was pointed out that our perplexity is increased by the responsibility cast upon us by the compulsory notification of infectious diseases.

DR. TWEEDY said he wished to mention a case somewhat parallel to Dr. Smith's case of mastitis occurring as a sequela in typhoid fever. This was a painful swelling which occurred in the mamma of one of his patients at the approach of the menstrual period and disappeared when it was over. It occurred with great regularity, and Dr. Cruise, who saw the case with him, considered it was one of "painful mammary tumour." As regards the difficulties met with in the diagnosis of scarlatina in its early stages, he mentioned some mild cases occurring in the Royal Irish Constabulary Dépôt, Phoenix Park. They came into hospital with a temperature of 102° , which only lasted one night; they had some sore throat and headache, sometimes a slight rash over the sternum, and sometimes some desquamation followed.

DR. J. W. MOORE mentioned that he had at present under his care a young girl who, when convalescing from typhoid, developed an acute inflammation of the left breast. This subsided under poultices, and it was noticed that there was great dilatation of the veins while it was disappearing. The patient alluded to by the President as suffering from aortic disease, is at present in the Meath Hospital. He has had several attacks of haemoptysis and also of angina pectoris.

DR. DRURY mentioned two interesting cases illustrating the difficulty in the diagnosis of scarlatina. One was a child three years old, who was attacked with vomiting and headache and sore throat one morning. In the evening a rash came out. He saw it the following morning, and there was a bright punctate rash on the chest. T. 102° , P. 152. By the end of a week the temperature was quite normal. The curious part of the case was that no desquamation took place. The second was a similar case as regards desquamation, and it was also remarkable that from the time he saw it, which was the day after the rash came out, there was no rise of temperature or acceleration of pulse. The following week the child's nurse was laid up with undoubtedly scarlatina.

DR. BURGESS narrated a case which apparently commenced as tonsillitis, but in 5 or 6 days a rash came out all over the patient's body. The patient's three children were laid up with scarlatina within a week.

DR. BEATTY said he had never met with a case of aortic patency in which a thrill was perceptible over the base of the heart.

The PRESIDENT, Dr. Walter Smith, briefly replied.

Warty Disease of the Legs.

DR. H. C. TWEEDY exhibited a case of extensive warty growths completely encircling both legs and separated by sharp lines of demarcation from the healthy skin above, and from the feet by a greatly thickened roll of integument.

The patient was a man, fifty years of age, a groom by occupation. He had contracted syphilis fourteen years previously. This had been followed by ulceration and swelling of the legs, and subsequently by the formation of extensive warty growths between the lines of demarcation mentioned, and above were scattered tubercles and one large raw-ham-coloured plaque in the right popliteal space.

Dr. Tweedy expressed his opinion that the disease was of syphilitic origin—first, from the history of the case; secondly, from the continuity of the disease; thirdly, from the admitted fact that morbid processes, like syphilis, &c., are liable to develop papillary growths under certain favouring conditions; and, fourthly, by the great improvement that was produced by the use of potassium iodide which was causing retrogression and absorption of some of the tubercles.

DR. SMITH said that he thought the diagnosis of the disease as a syphilitic lesion was an open question. He would be inclined to class it as a case of "elephantiasis," remembering the loose way in which that term was applied.

Pernicious Anæmia.

DR. CRAIG exhibited a case of pernicious anæmia, and subsequently read a paper on the subject. [It will be found in Vol. XCVI., page 489.]

DR. GRAVES wished to know whether the colour of the patient's skin was peculiar. In all the cases he had seen the skin had a faint lemon colour.

DR. LITTLE said that he had noticed that this disease occasionally affects members of the same family. Many years ago he attended a lady suffering from it, and who died; four or five years afterwards her sister died from the same disease, and in a few more years their brother died of it. They were all about the same age at the time of their deaths. He remembered seeing a case in the Adelaide Hospital in which the patient had severe pyrexia when he died. In the early stages of the disease the diagnosis lay between cancer of the stomach and pernicious anæmia, and it was only after a lapse of time that a positive diagnosis could be given.

DR. CRAIG, in reply, stated that when the patient came to him his skin had a very yellow tint.

The Section then adjourned.

SECTION OF OBSTETRICS.

President—RICHARD D. PUREFOY, M.B. Univ. Dubl.

Sectional Secretary—F. W. KIDD, M.D.

Friday, November 24, 1893.

The PRESIDENT in the Chair.

Exhibits.

The PRESIDENT exhibited a large ovarian cyst removed from a patient who had been the mother of several children, and believed herself to be pregnant again; the increased size of the abdomen suggested nothing else. He gave her some tonic medicine, and after three months she returned complaining that she had had a fall and that the child was displaced. He still did not examine her, but on her return a week afterwards he found, on examination, that it was a very large ovarian cyst and not pregnancy. Although there was no complaint of pain, of vomiting, or of sickness, still the cyst was closely adherent to the abdominal wall, and the adhesions were broken down with considerable difficulty. The patient now enjoyed capital health.

The second specimen of myoma illustrated the considerable difficulty in distinguishing between a solid ovarian tumour and a uterine myoma with a long pedicle. The tumour was removed from a patient of middle age; it was easily felt, very mobile and evidently having a long pedicle half an inch in thickness. On opening the abdomen the tumour proved to be not a solid ovarian tumour, as some of them had thought, but a uterine myoma with a long pedicle. The subsequent history of the case was very sad. There was no difficulty whatever with the operation. The pedicle was transfixated and ligatured. The pulse remained normal for three days after the operation. On the fourth day it became more rapid, and with a very trifling rise of temperature—rarely above 100°—the patient gradually sank and died on the eighth day. There was no vomiting and no diarrhoea, and he was still quite at a loss to account for the untoward ending of the case.

DR. F. KIDD inquired as to whether there was a *post-mortem* held in the case, and the President answered in the negative.

MR. M'ARDLE exhibited a simple ovarian cyst removed ten days ago, and the patient was now quite well. He then exhibited a case of femoral hernia containing an ovary. He diagnosed it as omental hernia. The presence of a glandular mass lying on the surface of the tumour added to the difficulty of diagnosis. The symptoms were those of a strangulated femoral hernia. When he cut down on it the sac came off entire and the tumour was left as a smooth mass. Then for the first

time it struck him that the tumour was an ovary. He then took away the tumour, closed the opening in the sac and closed the femoral ring. He held that he was justified in depriving this girl of an ovary, because the opening was so small that he could not return it. Besides, it would be impossible for him to return it without cutting Poupart's ligament, and thus inflicting upon the girl a life-long trouble, because he knew of no means by which you could prevent a hernia after having cut Poupart's ligament.

He next exhibited a specimen of a sac removed in the cure of ventral hernia following laparotomy.

The PRESIDENT said the most difficult question to decide was as to the removal or otherwise of the ovary. He took it that Mr. M'Ardle endeavoured to replace the ovary, and finding that impossible, removed it.

MR. TOBIN said that, as an operating surgeon, he would like to get their opinion on one point—that was, where the ovary was capable of being returned into the peritoneal cavity, whether it would be well to do so or not, as there was a liability to its forming adhesions to the peritoneum, where it had recently been lying.

DR. A. J. SMITH said the question that presented itself to his mind was whether this case should not have been operated on by an abdominal section, as probably this ovary might have been an accessory one. If they operated from above they could easily see whether there was a second ovary, and whether it might be possible to draw back the mass.

DR. MORE MADDEN said that, as far as his experience went, ovarian hernia—i.e., displacements of the ovary, apart from those due to ovarian disease, were the most frequent of the troubles that were met with in every-day gynaecological practice. He believed that these displacements were very commonly neglected, and their symptoms generally ascribed to other intra-pelvic morbid conditions. He said these displacements, although occurring in the femoral and inguinal regions, were most frequent in the retro-uterine *cul-de-sac*. He thought they should follow some rule as to the treatment of these displaced organs. If they were the cause of great trouble and pain, especially increased at the menstrual period, and leading to reflex nervous symptoms, he thought they should follow the practice which Mr. M'Ardle adopted and remove them.

DR. ATTILL thought that these cases were exceedingly rare, and he himself had never seen one of them. He believed they were cases more for the surgeon than for the obstetrician or gynaecologist. Although he himself was one of the first to commence abdominal surgery in Dublin, still he thought now the tendency was to go too far in that direction. With regard to Mr. Tobin's question, he thought that in such cases as this the ovaries should be removed.

DR. A. J. SMITH next exhibited two specimens of ovarian cyst. He said one was taken from a girl, aged seventeen, who made a good

recovery. It was a simple cyst of the ovary. He said the interesting point about it was that the woman did not know that there was anything wrong with her, or that she had a tumour.

The next case was of more interest. The patient was married eleven years and had no family. Three years ago she began to complain of pain in the left side, and she also felt something "wobbling about" in her abdomen. On examination under ether, he, in conjunction with Drs. M'Arkle and Horne, found a fairly solid ovarian tumour. On passing the sound it went such a distance that he was afraid it was a fibroid tumour. On abdominal section they found an ordinary ovarian tumour, and on pulling out the cyst he noticed that the Fallopian tube was distended into little sacculations quite distinct, and the tube was so patulous that the sound could be passed through it. He had probably, when using the sound, passed it into this patulous tube.

DR. HORNE said that they found that the sacculations contained little collections of pus. The point of interest was the extreme patency of the Fallopian tube, and the presence of these little sacs of pus, with intervals between the saccules of normal tissue. The patient was now three weeks without a rise of temperature.

President's Address.

THE PRESIDENT then delivered an opening address. He briefly reviewed the history of the study of Medicine and Surgery in Ireland from a remote date, noting the fact that there was historical evidence of medicine having been studied and practised here more than a hundred years B.C. He dealt more in detail with the rise of the Dublin School of Midwifery and Gynaecology and the establishment of the Rotunda Hospital in 1745. He alluded to names and writings of the many distinguished obstetricians who have since flourished in this country. The dates of the foundation of most of the British lying-in hospitals were mentioned, and also the strange fact that so late as 1854 Mr. Guthrie informed a Committee of the House of Commons that "no instruction was given to midwives in England."

Ventral Hernia.

MR. M'ARDLE read a paper on this subject. [It will be found at page 101.]

DR. A. J. SMITH said when he last read a report of abdominal section before this Section he had ventral hernia in two of his cases. One of the explanations then given was that he had abscesses in the track of his sutures, while another was that there was bad adaptation of the surfaces together. The difficulty was how subsequently to treat them. He said there was no abscess whatever, but after a month or so this accident occurred on very slight exertion. In one of the cases you could

dip in your finger as if the sutures cut their way through everything. He then dissected the skin flap, split it, sutured, &c., and the patient was now quite well.

The next operation was one he performed last January on a patient who had a fibroid tumour. There was no necessity to remove the fibroid, but there was to remove a small umbilical hernia which, on one occasion, nearly caused her death. He performed the same operation—dissected the skin, passed strong sutures through the peritoneum, stitched the aponeurosis of the flap, and union was so good that all last autumn she was engaged pitching hay in the meadows. He did not believe that abscess was the cause of ventral hernia at all, and he agreed with Mr. M'Arde that the retraction of the elastic aponeurotic fibres of the middle stratum seemed to be the most important with reference to the union in abdominal sections.

Further discussion on this interesting paper having been postponed to next meeting owing to the lateness of the hour,

The Section then adjourned.

SECTION OF PATHOLOGY.

President—J. A. SCOTT, M.D.

Sectional Secretary—J. B. STORY, F.R.C.S.I.

Friday, December 1, 1893.

The President in the Chair.

Hydrocephalus.

DR. O'CARROLL showed a hydrocephalic brain taken from a boy, thirteen years old, who had died suddenly after a week of illness, of which the most prominent symptoms were morning vomiting and headache. No cause for the sudden death could be found. The hydrocephalus had existed from about the 9th month after birth. The anatomical cause of the hydrocephalus seemed to be an abnormally thick (4 mm.) and perfectly imperforate inferior medullary velum, which bound the medulla closely to the cerebellum. It was uncertain whether this was a congenital or a post-natal condition. A history of a comatose attack, lasting forty-eight hours, at about nine months after birth, and of the swelling of the head, having begun only then, seems to suggest that the condition supervened towards the close of the first year of extra-uterine life.

Urinary Organs from a case of Cystitis, with Surgical Kidneys.

DR. M'KEENEY showed the urinary organs of this case, which was that of a man, aged thirty-five, who was admitted to the Mater Misericordie Hospital, Liverpool, in a state of extreme debility, with a history of frequent attacks of cystitis, and of the passage of large quantities of urine.

cordis Hospital, under the care of Dr. Boyd and Mr. Hayes, suffering from fever (102°) and complete inability to pass water, with great pain in urethra and hypogastrium. He had had gonorrhœa twenty years ago, followed by stricture. The urgent symptoms having been relieved by supra-pubic tapping, a catheter was with much difficulty introduced. Shortly afterwards patient got gradually weaker, his temperature fell to 96°, and he died with symptoms pointing to uremia on the 30th October. The prostate was found enlarged, and its glandular apparatus changed into a series of abscess-cavities filled with viscid grayish muco-pus, in which were suspended hundreds of black gritty calculi of irregular outline and averaging the size of a millet seed. The bladder was greatly thickened and sacculated, and the mucous membrane was in places coated with a sort of diphtheritic exudation. There was no tendency to the deposition of phosphates. Many of the sacculi contained muco-pus. The kidneys were deeply congested, and the cortex was thinned and presented numerous small white patches. The right ureter was dilated in its lower fourth, and the wall was intensely hyperæmic; but no obstruction could be found save perhaps at the orifice of the ureter, which was narrowed. The microscopic examination of the kidney showed extensive small-cell infiltration; atrophy of glomeruli, with conversion of some of them into masses of hyaline material; loss of epithelium and shrivelling of convoluted tubules, with disappearance of nuclei in many of the cells that remained; haemorrhages into tubules as well as into interstitial substance; and colonies of bacilli not demonstrable by Gram's method, and similar in appearance and arrangement to *Bacillus coli*. The mucous membrane of the bladder showed loss of epithelium, phagocytosis in the submucous tissue, with extensive hyaline changes. The prostatic calculi had been analysed by Mr. Adeney, of the Royal University, and found to consist mainly of phosphate and carbonate of calcium and magnesium, with a quantity of combustible nitrogenous matter. The exhibitor drew attention to the views of Posner, Jürgens, and others regarding the origin of prostatoliths.

The PRESIDENT mentioned a similar case he had examined. The history was much the same, and on *post-mortem* examination he found small white spots in the kidney, which proved to be granulomata. He found also pus cells and cocci in the kidney.

DR. FINNY suggested that the disease of the aortic valves might be due to a diphtheritic inflammation. If this were so, many of the symptoms of the case would be explained. He asked if there was any evidence of a co-existent disease which might explain the hyaline degeneration in the kidney.

DR. NIXON asked was there any connection between the prostatic venous plexus and the concretions exhibited. Concretions, he said, were often found in connection with it.

DR. M'WEENEY, in reply, stated that the aortic disease seemed to be of long standing, and that there was no evidence of secondary suppurative foci in any of the viscera. The micro-organisms he found in the kidney were bacillar, and he believed ulcerative or diphtheritic endocarditis was caused by coeci. He had no evidence in the history or the *post-mortem* appearance of any co-existent disease to account for what was found in the kidney. As regards Dr. Nixon's question, it seemed to him, on a rather cursory examination, that the concretions were in the midst of prostatic substance.

Apoplexy of Mesentery.

MR. F. A. NIXON exhibited a specimen of apoplexy of the mesentery, taken from the body of a woman, aged sixty, who had been found in a dying condition at foot of the steps of her residence. She had, some time previously, undergone a slight operation for disease of the cervix uteri, and while convalescing had suffered from an apoplectic seizure, with hemiplegia. More than a foot of the small intestine was surrounded by soft blood-clot; the vessels generally were atheromatous. There was haemorrhage into the left broad ligament, also into the left inguinal canal. There was slight haemorrhage from the vagina. There was no evidence of external injury.

DR. M'WEENEY described a case in which there was thrombosis of the superior mesenteric vein, with great dilatation of its tributaries and intense congestion of the portion of intestine from which the veins sprung. This was in a state of haemorrhagic infarction, and there seemed to have been a weeping haemorrhage into the bowel, for it contained about a quart of blood. The patient was a girl, who came in with an abscess in her neck, and after it had been opened developed erysipelas. She went on well for a few days, when she was seized with violent pains in her stomach, and died in a few hours.

Dilatation of the Stomach and Ptosis of the Transverse Colon.

DR. H. C. TWEEDY exhibited a case of dilatation of the stomach with enteroptosis of the transverse colon. [It will be found at page 118.]

DR. SCOTT called attention to the fact, which this case illustrated, that it was not in cancer of the stomach only that hydrochloric acid was absent from the gastric secretion. This man seems to have lived, as it were, on potatoes, and as the stomach does not digest potatoes, the gastric juice would be of no use and so would cease to be secreted.

DR. FINNY thought that the dilatation might be due to muscular debility or congenital malformation. The mere mechanical cause seemed to be an insufficient one. The close connection of the transverse colon with the stomach might have something to say to it, as this is sometimes very long, and would, when full, exercise considerable traction.

The Section then adjourned.

LECTURE.

*The Use and Abuse of Alcohol.** By SURGEON MAJOR P. H. FOX,
F.R.C.S.I., L.R.C.P.L., D.P.H., &c.

THE use and abuse of stimulants, whether regarded in a military or a social sense, is a subject of very great importance. Because, I think I am safe in saying, scarcely one man in a hundred of the spirit drinking community ever considers what are the beneficial or pernicious effects of alcohol. Most soldiers drink because they like it, and never for a moment reflect on the consequences. The majority regard beer as a necessity, and they drink—often to great excess—believing it cannot do them harm and that it is essential to the life of a soldier.

There are a great many advocates of total abstinence—good, sincere, philanthropic men. They condemn the use of alcohol in any quantity, shape, or form. They believe there can be no medium course. They regard the spirit drinker as totally ruined and lost. Like the hound that once tastes blood they believe there is no stopping him. During the temperance movement of the late Father Mathew of Cork the cry was—“Teetotalism or not teetotalism.” Things have altered, and now the cry, in the army at all events, is “temperance or not temperance.”

I need scarcely say that, in common with my professional brethren, I am an advocate of temperance. But let it be distinctly understood that I draw the line between temperance and total abstinence. By temperance I mean the use of alcohol as a diet-drink, in such small quantities as are found and proved to be beneficial to health. By intemperance I mean the abuse of alcohol, and by total abstinence its avoidance altogether. We have, therefore, three classes to deal with—viz., the total abstainers, the temperate, and the intemperate.

It would be very much simpler and easier to discuss the subject from opposite points of view—that is to adopt Father Mathew’s cry and plead for teetotalism or nothing. We could then talk of the blessings and comforts to be obtained by avoiding the noxious thing altogether, or we could tell of the poverty, crime, and misery caused by the free and unrestrained abuse of alcohol. However, I prefer to take the medium course and make out as clear a case as I can in favour of temperance and moderation; but, before going further, it is necessary to explain what alcohol is, how much could be taken as a diet-drink, its effects, &c.

Alcohol is usually defined by chemists as a “spirit,” or “spirituous fluid,” or “chemical compound,” obtained from fermented saccharine fluids or malted grain by distillation. The presence of yeast at 60°

* Being a lecture delivered to the non-commissioned officers and men of the Medical Staff Corps.

or 80° F. is necessary to split up the grain into alcohol and other products, principally carbonic acid gas, which escapes into the air leaving the alcohol behind in the water—such at all events is the main chemical reaction which takes place in the production of alcohol—and it is only further necessary to remember for our purpose that all spirituous liquors contain alcohol and water in various proportions. The best brandy, whisky, and rum contain respectively about 50 per cent. of alcohol and very nearly the same amount of water. The strong wines, e.g., port, sherry, and Madeira contain from 16 to 25 per cent. of alcohol. The light wines, e.g., champagne, hock, and Moselle contain from 6 to 16 per cent. of alcohol, while Irish stout and English ale contain not more than 5 per cent., and as to American and German beer they scarcely contain more than 2 per cent. It should also be remembered that all strong spirits contain ether, aromatic substances, and colouring matter in addition to alcohol, while wines and beers contain acids, salts, and sugar as well. The strength and composition of the best ales, wines, and spirits are very uniform, and if a man drinks a good article he may be pretty certain as to the quantity and amount of alcohol he is swallowing. But as to bad and immature stuffs God only knows what impurities and adulterations they may contain. One thing is certain—viz., that all new spirits, all young whisky, and bad cheap brandy (which is made from potatoes), contain large quantities of fusel oil. This fusel oil is technically called by chemists "amylic alcohol," a most dangerous and fatal poison. I remember a coincidence which occurred when I was a student in Dublin, and which will serve to illustrate the poisonous nature of fusel oil. A great fire broke out in a large building or bonded store, where one of the great city distilleries had an immense quantity of fresh and immature whisky deposited. The fire occurred at night, about 10 o'clock, and attracted crowds of people from all parts of Dublin. The conflagration quickly attacked the whisky barrels, which burst, allowing the flaming whisky to run in torrents through the streets. Amongst the spectators were numerous thirsty souls who thought it a fine opportunity to have a "cheap drunk." They drank the spirit off the streets, and the next morning the hospitals were crowded with dead and dying—all poisoned with the fusel oil of the fresh young whisky. I could point out many other cases of fusel oil poisoning that have come under my own notice. But it is unnecessary. What I want to impress is this—all new and immature spirit contains an excessive quantity of fusel oil, or amylic alcohol, and that this substance is a deadly poison, whereas the ripe, mature spirit contains little or none. Because by age and maturing the amylic alcohol is gradually converted or transformed into pure ethylic alcohol which is not a deadly poison. It is for this reason that legislators have proposed to increase the duty on fresh young spirits, so as to prohibit its sale as far as possible. It would certainly be a step in the right

direction; and I think it ought not to be a very difficult matter for the military authorities (so far as the army is concerned), to prohibit the use of any spirit under ten years old. Wines should be dealt with in a similar manner. We all know the value and properties of fine old crusted port; but we never get it at military hospitals; the contract system stops that.

Now a few words in regard to adulterations. These are not very numerous or dangerous. Certain berries, logwood, or burned sugar are added for the purpose of imparting colour to wines and spirits. Lime salts, lead, and alum have been found in wines; but they are not of frequent occurrence. Beer appears to be the principal beverage on which adulteration to any great extent is carried out. Sulphuric acid is added to give it the head and hard flavour of age; alum, salt, and iron are added for a somewhat similar purpose. But when the beer commences to turn and go bad lime and soda are the popular remedies employed to correct the sour taste. Strychnin has also been found in beer; it has been added for the purpose of increasing the bitter taste. Indian hemp is another dangerous adulteration which I am informed is added to an Indian spirit called "*Arrack*." The active principle of Indian hemp, "*cannabin*," produces peculiar, maddening delusions; and I have seen arrack drinking soldiers in India suffer from the self-same delusions, which I always attributed to the action of Indian hemp. The only other adulteration worth mentioning is water. This is largely added to spirits for a very obvious reason; and all canteen sergeants know the trick of adding it to beer. It is thus evident that more or less tampering is carried out with almost every kind of alcoholic drink. But this should not occur. And I am of opinion it would not occur if the authorities brought the chemist's art more frequently into requisition.

Having so far explained the properties of alcohol and its various amounts in the different kinds of drinks, together with their adulterations and impurities, we pass to the question as to its utility as a medicine and a "diet-drink." I may as well state at once that alcohol as a medicine is absolutely necessary in the treatment of certain diseases. The entire medical profession are unanimous on that point; consequently, I think, we need not further consider its medicinal uses here. With alcohol as a diet-drink we are at present more immediately concerned; but on this point the medical profession are not unanimous. With army surgeons, however, the discrepancy of opinion as to the dietetic uses of alcohol is less marked—in fact almost all military men are agreed that there is wonderful efficacy in a glass of good wine after dinner; and as to poor "*Thomas Atkins*" it may be taken for granted that he knows and appreciates the virtue of a sound, "honest, pint." In this as in most other matters we must be guided by facts and experience. They teach us that bad or impure drink does not agree with anybody; it wrecks the cou-

stitutions of thousands and sends them to an early grave. Therefore, I think, that all immature liquors containing poisonous fusel oil should be ruthlessly condemned and scouted out of the market. To my mind it would be as wrong for a man to take a dose of bad liquor as it would be for him to swallow a narcotic poison—the only difference is that bad liquor kills slowly, the narcotic quickly. Bad whisky kills slowly but surely—I merely mention it to condemn it. Therefore, let it be borne in mind that when I speak of the dietetic uses of alcohol I am referring to the honest, ripe, and well matured article, free from fusel oil or other impurities. When a small quantity of alcohol is taken the vessels of the stomach absorb it quickly, and thus becoming mingled with the blood it is rapidly diffused through all the organs and tissues of the body. All the vital functions are stimulated; the heart's actions becomes more vigorous; the appetite is increased; the digestion is improved; the functions of the skin and kidneys are better performed; the nervous system is strengthened and invigorated; the brain and other organs derive benefit; and mental ideas flow clearer and fresher. These well marked and peculiar properties of alcohol are most useful at the turn of life when people commence to slide down the hill; and in declining years, as an aid and spur to all the vital functions, its efficacy is most important. By its aid the aged and languid powers are braced up, and stimulated life is prolonged and rendered more pleasant and agreeable. On the other hand it is a well recognised fact that children and young people do not require stimulants; it would be injurious to them, especially because, as a point of fact, youth and adolescence are the periods in life, above all others, for vigorous appetites and most perfect digestions. Therefore these functions require no aid or spur; and the best authorities are of opinion that healthy men and women under middle age do not require stimulants and are better off without them. We may, I think, therefore conclude that alcohol is injurious to children, unnecessary in healthy adult life, but beneficial from that age onwards.

We next come to consider the amount of alcohol it would be safe and judicious to take as a dietetic drink in the 24 hours. Our information on this point is derived mainly from observations and experience. The late Professor Parkes, at the Royal Victoria Hospital, Netley, made several experiments. In one he gave a healthy adult 12 ounces of brandy in divided doses—viz., 4 ounces every fourth hour. The first 4 ounces did not affect the man's capacity for work; the second 4 ounces lessened muscular force, while the third 4 ounces entirely destroyed the man's power of walking. In other words the 12 ounces of brandy taken in divided proportions at regular intervals produced intoxication. In this experiment it is important to bear in mind that the 4 ounce measure of the brandy employed contained $1\frac{1}{2}$ ounces of pure ethylic alcohol, and that this amount did not apparently interfere with the man's physical or

mental capacity in any way. Other experiments have been made by other observers, and they all go to prove that any quantity over 2 ounces of absolute alcohol will produce injurious effects. Therefore, roughly speaking, 1 to 2 ounces of pure alcohol, largely diluted, ought to be the daily limit in health.

We have seen that the best spirits do not contain more than 50 per cent. of pure alcohol. Consequently, as an average wineglassful equals about 4 ounces, and as a bottle holds about 28 ounces or 7 wineglassfuls, it is evident that a bottle of good whisky or brandy should be a full weekly allowance for a temperate man. But, unfortunately, we too often see instances in which a man will drink a whole weekly allowance in one night. I have shown that the strong wines average about 20 per cent. and the weak wines 10 per cent. of absolute alcohol. Therefore, it is evident that half a pint of the former or one pint of the latter should be a sufficient daily allowance. Yet, how often have I seen a man drink a quart, nay, a magnum of champagne after dinner. I have also pointed out that the best Irish stout and the best English ales do not contain above 5 per cent. of pure alcohol, consequently the daily ration of either of these beverages ought not to exceed one quart. But in the army how often do we hear of a man drinking two or three gallons. I have the notes of one man who would drink a small barrel in the day. He was a quarter-master sergeant and weighed over 20 stone.

It may be asked what is the best liquor to take as a diet-drink? An answer to that question turns mainly on the vital and physical condition of the individual; but to some extent also on the quality and purity of the beverage itself. At the present day it is a most difficult thing to get good brandy. The *British Medical Journal*, dated Sept. 26th, 1891, states, on the authority of Mr. Warburton, British Consul, Rochelle, that the supply of really genuine brandy—produced directly from the grape—is every year becoming smaller and smaller. A bottle of pure brandy, he states, cannot be purchased in France under 25 francs—that is to say the genuine stuff is worth a guinea a bottle. The spurious or false brandy is made from potato spirit; and, in this country it takes the place of the real article. It is cheap enough in one sense, but, being a slow poison, it is dear enough in the other; consequently, as brandies are most unreliable, I advise my friends to avoid them altogether. The stuff supplied as brandy to military hospitals is decidedly undesirable in the treatment of the sick, and, personally, I never prescribe it, if I can possibly avoid it. Neither can I say much for the general purity of the strong wines. That some are largely adulterated with foreign matter and extraneous spirit there can be no doubt, consequently we may reduce the long list of liquors to three only—these are whiskys, light wines, and ales. The Dublin whisky and Dublin stout are certainly pure and reliable articles, and I believe them to be the most wholesome alcoholic

drinks in the world. But of course they are only fit for gentlemen, so I would recommend the light wines for the ladies.

We now pass to what some may regard as the most interesting part of the subject—I mean the abuse of alcohol. Various causes have been assigned for the wreckless and intemperate abuse of alcohol. Some believe that it is a form of insanity. Hence it is termed *dipsomania*. Our American cousins appear to look on it in that light, and they even go so far as to assert that the dipsomaniac should be placed under restraint in the same manner as any other lunatic. In many of the States, it is said, they have entered on a vigorous crusade against intemperance. They will not accept fines for drunkenness. They simply run the habitual drunkard into jail, and they keep him there for any term they like, not exceeding one year. In habitual and aggravated cases this procedure seems, to me, humane and justifiable. Because we know that, too frequently, persons are allowed to drink themselves to death, unheeded and uncontrolled; consequently before their moral and social prospects are utterly ruined it would be the most charitable act in the world to lock them up. If you leave them at large they are certain to drink—drink, if they have the means—till they die or go mad. Dipsomaniacs as a rule die quickly. Any concomitant disease is sure to carry them away. But, apart from disease, how many die violent deaths, accidentally or otherwise. In my own experience I have known a great number. I will give one case out of many:—During the hot weather of 1884 I was stationed at Hyderabad, Sindh, and several cases of heat apoplexy occurred in that station that year. One poor fellow belonging to the regiment came sick one afternoon. He was flushed and nervous, and his temperature was 104. He said, “I have been a teetotaller all my life, and never knew the taste of liquor till yesterday, when my comrades induced me to have some drink. I drank ale to excess last night, and I was very ill from its effects. I had more to-day; because I was advised to take a ‘hair of the dog that bit me.’ But it made me worse, and I was obliged to come sick.” He was put to bed, but during the night he became comatose, got convulsions, and died. This case is interesting in more respects than one. It shows that a pernicious habit exists amongst soldiers of presssing their comrades to drink. Very few army surgeons there are who have not met with sad cases of *delirium tremens* and insanity, directly traceable to intemperance. Personally I do not mean to enter into particulars. Everybody hears of accidental deaths and suicides occurring every other week. They are usually very painful cases, at least such as we meet in the army, and I do not wish to refer to them further in this place. Suffice it to say, that intemperance is the direct cause of more sickness, more misconduct and misfortune than any other factor known to me. It is the fountain from which most of our social and physical ruin comes.

It helps largely to fill our gaols. It unhinges the minds of thousands and wrecks the constitutions of numbers untold.

There is another class of cases in which men do not drink constantly to excess, but who may do so occasionally. *Punch* gives causes and excuses for these occasional indiscretions. He says:—One man takes an extra glass because a friend called to see him, another because his friend *did not call*; one man gets into the way of taking an extra glass because he *got married*, another because his *wife died*; some drink because they are going away, others because they *come back*; some because they are *hot*, others because they are *cold*; one because he has a *rising*, another because he has a *sinking*; and the Irishman, it is said, drinks for no reason at all. However, apart from the comic aspect of the question, I think that the cause of an occasional “bend,” in an otherwise temperate man, is either joy or sadness. The troubled conscience finds relief in whisky. It comes to the gambler’s relief on occasions of great excitement. “Throw in a bottle,” says Sheridan, “and I *never lose*, or at least I *never feel my losses*, which amounts to the same thing.” And Shakespeare says—“Give me a bout of wine; in that I bury all unkindness.” Therefore, it seems that the cause is always some mental disturbance. But whatever the cause, the thing to fear and avoid is the habit. One single debauch, if carried to excess, may terminate fatally; and the man who indulges in occasional debauches may, and very frequently does, turn out a habitual drunkard. What are the consequences? Premature decay and an early death. Examine the vital statistics and you will find that if a man becomes intemperate at the age of 20, he will never live to be 35; but should he lead a fairly temperate life, the chances of his living to 65 or more are very great. The intemperate beer drinker has a slightly better chance than the spirit drinker. The difference is not of very material importance, so let no man be deceived. Poisonous doses of alcohol, in whatever shape or form, will certainly kill sooner or later. It may be asked in what manner are the destructive actions of alcohol induced. The answer is by causing degeneration of all the tissues of the body, and, hence, inducing a gradual break up of the entire system. The heart degenerates and becomes fatty; the liver degenerates and becomes disorganised; the intellect fails; the constitutional vigour is lost; and thus insidiously a gradual decay puts an end to the unhappy scene. In proof of these statements I will for a moment ask your attention to the statistics of two societies, both well known and often referred to in discussions of this kind—I mean the Rechabites and the Ancient Order of Foresters. The former is a society of total abstainers, while the latter, as I understand, does not contain any teetotalers. Compare the mortality of these societies and you will find that at 20 years of age 1·7 per 1,000 more Foresters die than Rechabites; at 30 years, 2·95; at 40 years, 5·62; at 50 years, 6·65; and at 60 years, 8·51. There is thus no

difficulty in showing that the total abstainer is even a better life than the moderate drinker—that is, if we can regard the Foresters as moderate drinkers. The statement may be taken *cum grano salis*, for the few Foresters I have known were decidedly heavy drinkers.

There is just one more point to which I would wish to direct your attention. It is this—the children of intemperate parents are always mentally and physically weak. Every medical man knows that consumption is a disease which produces havoc amongst the families of drunken parents. Insanity and epilepsy are others. It has been estimated that 20 per cent. of all cases of lunacy occur amongst the habitual drunkards, and about 40 per cent. are the descendants of habitual drunkards. Consequently, it is evident that the abuse of alcohol affects the future as well as the present generation.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS, ROME, 1894.

MESSRS. THOS. COOK & SON of Ludgate Circus, London, E.C., have been appointed the official agents for travelling arrangements for the Congress, and they have made arrangements for special cheap return tickets to Rome for members of the Medical profession and friends attending the meetings. At the request of the Central Committee they have also arranged to reserve hotel accommodation in Rome for delegates and friends at rates varying from 10s. to 20s. per day, or higher if superior apartments are required. The fact of the Congress being held immediately after Easter renders it difficult to guarantee accommodation at hotels, and Messrs. Thos. Cook & Son will not guarantee to provide the same unless they receive application on or before February 15th, stating the number of days for which accommodation will be required, the number of rooms and beds desired, and the approximate rate per day that will be paid. They will, however, do their best to meet the wishes of those delegates who cannot give their decision prior to that date. They have also issued a special programme of a select conducted party to leave London on Tuesday, March 27th, travelling *via* Dover, Calais, Paris, and Turin to Rome, spending eight days in that city, and returning by the same route, and spending Sunday, April 8th, in Genoa, at a specially low and inclusive rate to delegates of £16 5s., providing for all travelling tickets, meals *en route*, and for the eight days' stay in Rome. In addition to the above arrangements a programme has been drawn up of conducted tours for visiting Sicily, Naples, Vesuvius, Pompeii, Capri, Sorrento, &c., &c., and for three days' excursions in Rome under the leadership of Dr. Russell Forbes, the Archaeological and Historical Lecturer on Roman Antiquities.

SANITARY AND METEOROLOGICAL NOTES.

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VITAL STATISTICS

For four Weeks ending Saturday, December 30, 1893.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

TOWNS	Weeks ending				TOWNS	Weeks ending			
	Dec. 9	Dec. 16	Dec. 23	Dec. 30		Dec. 9	Dec. 16	Dec. 23	Dec. 30
Armagh -	21·0	21·0	56·1	28·0	Limerick -	25·3	22·5	19·6	30·9
Belfast -	23·6	29·3	31·3	33·4	Lisburn -	25·7	29·8	21·3	8·5
Cork -	35·3	45·0	42·2	31·1	Londonderry	28·3	29·8	28·3	28·3
Drogheda	52·7	39·5	52·7	48·4	Lurgan -	18·7	9·1	27·4	18·2
Dublin -	29·5	27·4	30·1	35·6	Newry -	32·2	16·1	20·1	12·1
Dundalk -	12·6	12·6	12·6	16·8	Sligo -	35·5	10·2	15·2	10·2
Galway -	45·3	11·3	22·7	34·0	Waterford -	35·0	15·0	40·0	35·0
Kilkenny	33·0	28·6	14·2	42·5	Wexford -	36·1	58·7	40·6	90·3

In the week ending Saturday, December 9, 1893, the mortality in thirty-three large English towns, including London (in which the rate was 31·0), was equal to an average annual death-rate of 28·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 26·0 per 1,000. In Glasgow the rate was 27·4, and in Edinburgh it was 28·6.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 28·4 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 8·1 per 1,000, the rates varying from 0·0 in Waterford, Galway, Dundalk, Wexford, and Kilkenny, to 8·5 in Lisburn—the 6 deaths from all causes registered in that district com-

prising 1 from scarlatina. Among the 120 deaths from all causes registered in Belfast are 2 from measles, 1 from scarlatina, 4 from whooping-cough, 2 from diphtheria, 6 from enteric fever, and 4 from diarrhoea. The 18 deaths in Limerick comprise 2 from measles. The Registrar of Waterford No. 1 District reports that 2 of the 11 deaths registered in the district were attributed to influenza. The Registrar of St. Mary's District, Drogheda, remarks:—"Epidemic influenza and whooping-cough are both prevalent in this district;" and the Registrar of Armagh District remarks—"A widespread outbreak of influenza exists in Armagh District; no fatal cases as yet."

In the Dublin Registration District the registered births amounted to 180—104 boys and 76 girls; and the registered deaths to 205—101 males and 104 females.

The deaths, which are 1 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·6 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 29·5 per 1,000. During the forty-nine weeks of the year 1893, ending with Saturday, December 9, the death-rate averaged 26·7, and was 0·8 under the mean rate in the corresponding period of the ten years 1883—1892.

Thirty-two deaths from zymotic diseases were registered, being 7 over the average for the corresponding week of the last ten years, and 14 over the number for the week ended December 2. They comprise 5 from measles, 1 from scarlet fever (scarlatina), 4 from influenza and its complications, 6 from whooping-cough, 9 from enteric fever, 2 from diarrhoea, and 2 from erysipelas.

The number of cases of enteric fever admitted to hospital was 17, being 1 under the admissions for the preceding week: 18 enteric fever patients were discharged, 1 died, and 116 remained under treatment on Saturday, being 2 under the number in hospital on Saturday, December 2.

Thirty cases of scarlatina were admitted to hospital, against 16 admissions in the preceding week and 11 in the week ended November 25. Fourteen patients were discharged, 1 died, and 105 remained under treatment on Saturday, being 15 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included 14 cases of measles (being 4 in excess of the admissions for the preceding week, but 6 under the number for the week ended November 25), and 2 cases of typhus: 38 cases of measles and 6 of typhus remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had risen from 43 for the week ended November 25 to 51 for the following week, further rose to 60, or 11 over the average for the corresponding week of

the last ten years. The 60 deaths comprise 40 from bronchitis, 11 from pneumonia or inflammation of the lungs, and 3 from pleurisy.

In the week ending Saturday, December 16, the mortality in thirty-three large English towns, including London (in which the rate was 29·1), was equal to an average annual death-rate of 26·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 23·0 per 1,000. In Glasgow the rate was 23·4, and in Edinburgh it was 24·5.

The average annual death-rate in the sixteen principal town districts of Ireland was 28·6 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·2 per 1,000, the rates varying from 0·0 in eleven of the districts to 4·3 in Lisburn—the 7 deaths from all causes registered in that district comprising 1 from whooping-cough. Among the 149 deaths from all causes registered in Belfast are 6 from measles, 2 from scarlatina, 7 from whooping-cough, 1 from diphtheria, 3 from enteric fever, and 2 from diarrhoea. One death from influenza was registered in Kilkenny No. 1 District. The Registrar of Wexford District reports:—"Influenza is prevalent in the district;" and the Registrar of Armagh District remarks:—"Three deaths occurred in the district from influenza this week."

In the Dublin Registration District the registered births amounted to 157—85 boys and 72 girls; and the registered deaths to 189—80 males and 109 females.

The deaths, which are 18 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 28·2 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 27·4 per 1,000. During the fifty weeks of the year 1893 the death-rate averaged 26·7, and was 0·9 under the mean rate in the corresponding period of the ten years 1883-1892.

The number of deaths from zymotic diseases registered was 23, being 9 under the number for the preceding week and 1 under the average for the 50th week of the last ten years. The 23 deaths comprise 2 from measles, 1 from scarlet fever (scarlatina), 5 from influenza and its complications, 3 from whooping-cough, 6 from enteric fever, 1 from diarrhoea, 1 from dysentery, and 1 from erysipelas.

Only 11 cases of enteric fever were admitted to hospital, being a decline of 6 as compared with the admissions for the preceding week and 7 under the number for the week ended December 2. Twenty-six enteric fever patients were discharged, 2 died, and 99 remained under treatment on Saturday, being 17 under the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 20, being 10 under the admissions for the preceding week: 23 patients were discharged, 1 patient died, and 101 remained under treatment on Saturday, being 4 under the number in hospital on Saturday, December 9.

The hospital admissions for the week included, also, 20 cases of measles and 1 case of typhus, the former number being 6 in excess of the number of cases of measles admitted during the preceding week and 10 over the number for the week ended December 2. Forty-two cases of measles and 6 of typhus remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system amounted to 62, being 2 over the number for the preceding week, and 9 in excess of the average for the 50th week of the last ten years. They comprise 39 from bronchitis, 17 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, December 23, the mortality in thirty-three large English towns, including London (in which the rate was 26.3), was equal to an average annual death-rate of 24.7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22.3 per 1,000. In Glasgow the rate was 22.1, and in Edinburgh it was 20.4.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 30.8 per 1,000 of the population, based on the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 8.0 per 1,000, the rates varying from 0.0 in nine of the districts to 14.0 in Armagh—the 8 deaths from all causes registered in that district comprising 1 from measles and 1 from whooping-cough. Among the 159 deaths from all causes registered in Belfast are 7 from measles, 2 from scarlatina, 6 from whooping-cough, 3 from diphtheria, 4 from enteric fever, and 2 from diarrhoea. The 18 deaths in Londonderry comprise 2 from diphtheria. The Registrar of Cork No. 5 District, remarks:—"Measles is prevalent; influenza is fast diminishing"; and the Registrar of Waterford No. 1 District reports:—"Two deaths attributed to influenza."

In the Dublin Registration District the registered births amounted to 152—80 boys and 72 girls; and the registered deaths to 204—88 males and 116 females.

The deaths, which are 2 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30.4 in every 1,000 of the population. Omitting the deaths (numbering 2) of persons admitted into public institutions from localities outside the district, the rate was 30.1 per 1,000. During the fifty-one weeks of the year 1893 ending with Saturday, December 23, the death-rate averaged

period of 26·8, and was 0·9 under the mean rate in the corresponding the ten years 1883–1892.

Forty deaths from zymotic diseases were registered, being 17 over the number for the preceding week and 18 over the average for the 51st week of the last ten years. They comprise 1 from measles, 1 from typhus, 12 from influenza and its complications, 6 from whooping-cough, 1 from ill-defined fever, 8 from enteric fever, 3 from diarrhoea, and 4 from erysipelas.

There has been a further decline in the number of cases of enteric fever admitted to hospital. The admissions during the week ended November 25, amounted to 25, in the following week they fell to 18; in the week ended December 9, the number was 17; in the following week it fell to 11; and during the week now under review there were but 8 cases admitted. Twenty-nine enteric fever patients were discharged, 3 died, and 75 remained under treatment on Saturday, being 24 under the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 13, being 7 under the admissions for the preceding week and 17 under the number for the week ended December 9. Twelve patients were discharged, and 102 remained under treatment on Saturday, being 1 over the number in hospital on Saturday, December 16.

The hospital admissions for the week included, also, 13 cases of measles (being 7 under the number for the preceding week), and 2 of typhus. Forty cases of measles and 7 of typhus remained under treatment in on Saturday.

The number of deaths from diseases of the respiratory system registered was 54, being 11 in excess of the average for the corresponding week of the last ten years, but 8 under the number for the week ended December 16. The 64 deaths consisted of 35 from bronchitis, 18 from pneumonia or inflammation of the lungs, and 1 from croup.

In the week ending Saturday, December 30, the mortality in thirty-three large English towns, including London (in which the rate was 23·3), was equal to an average annual death-rate of 22·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·8 per 1,000. In Glasgow the rate was 20·8, and in Edinburgh it was 19·6.

The average annual death-rate in the sixteen principal town districts of Ireland was 33·5 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 3·8 per 1,000, the rates varying from 0·0 in eight of the districts to 17·6 in Drogheda—the 11 deaths from all causes registered in that district comprising 4 from whooping-

cough. Among the 170 deaths from all causes registered in Belfast are 13 from measles, 4 from scarlatina, 9 from whooping-cough, 3 from enteric fever, and 4 from diarrhoea. The 22 deaths in Limerick comprise 2 from whooping-cough, 1 from simple continued fever and 2 from enteric fever. The Registrar of St. Mary's District, Drogheda, reports:—"Influenza is on the decrease but still present. Whooping-cough and measles prevalent." The Registrar of Kilkenny No. 1 District remarks:—"Two deaths from influenza registered during the week."

In the Dublin Registration District the registered births amounted to 188—86 boys and 102 girls; and the registered deaths to 247—123 males and 124 females.

The deaths, which are 30 over the average number for the corresponding week of the ten years, 1883-1892, represent an annual rate of mortality of 36·8 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the district, the rate was 35·6 per 1,000. During the fifty-two weeks ending with Saturday, December 30, 1893, the death-rate averaged 27·0, and was 0·7 under the mean annual rate for the ten years 1883-1892.

Forty deaths from zymotic diseases were registered, being equal to the number for the preceding week but 17 over the average for the 52nd week of the ten years 1883-1892. They comprise 1 from varicella (chicken pox), 3 from measles, 2 from scarlet fever (scarlatina), 12 from influenza and its complications, 6 from whooping-cough, 6 from enteric fever, 2 from diarrhoea, 1 from dysentery, and 2 from erysipelas.

Fourteen cases of enteric fever were admitted to hospital, being 6 over the admissions for the preceding week: 13 enteric fever patients were discharged, and 76 remained under treatment on Saturday, being 1 over the number in hospital on Saturday, December 23.

The number of cases of scarlatina admitted to hospital was 9, being a decline of 4 as compared with the admissions for the preceding week, and 11 under the number for the week ended December 16. Seventeen patients were discharged, one died, and 93 remained under treatment on Saturday, being 9 under the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 28 cases of measles (being 15 over the number for the preceding week), and 2 of typhus. Fifty-seven cases of the former and 7 of the latter disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system amounted to 56, a number equal to the average for the corresponding week of the ten years, 1883-1892, and 2 over the number for the week ended December 23. They comprise 28 from bronchitis, 20 from pneumonia or inflammation of the lungs, 2 from croup, and 1 from pleurisy.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of December, 1893.

Mean Height of Barometer,	-	-	-	29·868 inches.
Maximal Height of Barometer (on 30th, at 9 a.m.),	-	30·706	"	
Minimal Height of Barometer (on 10th, at noon),	-	28·530	"	
Mean Dry-bulb Temperature,	-	-	-	42·8°.
Mean Wet-bulb Temperature,	-	-	-	40·8°.
Mean Dew-point Temperature,	-	-	-	38·2°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	.235 inch.
Mean Humidity,	-	-	-	84·6 per cent.
Highest Temperature in Shade (on 15th),	-	-	-	56·7°.
Lowest Temperature in Shade (on 2nd),	-	-	-	28·3°.
Lowest Temperature on Grass (Radiation) (on 2nd)	-	-	-	23·0°.
Mean Amount of Cloud,	-	-	-	57·3 per cent.
Rainfall (on 19 days),	-	-	-	2·482 inches.
Greatest Daily Rainfall (on 24th),	-	-	-	.499 inch.
General Directions of Wind,	-	-	-	S.W., W.

Remarks.

A generally open, rainy, squally month. The prevailing trend of the atmospheric depressions was from S.W. to N.E. along the western shores of the British Isles and of Scandinavia. At the close of the month an anticyclone spread westwards from the Continent to the British Isles, and was accompanied by an abrupt fall of temperature, much cloud and fog. The rainfall of the whole month (2·482 inches) was above the average. Several serious gales were felt, but calms with fog prevailed during the closing days of the month.

In Dublin the arithmetical mean temperature (43·5°) was decidedly above the average (41·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 42·8°. In the twenty-eight years ending with 1892, December was coldest in 1878 (M. T. = 32·8°), and in 1874 (M. T. = 36·8°), and warmest in 1865 (M. T. = 46·2°). In 1886, the M. T. was as low as 37·9°; in the year 1879 (the "cold year"), it was also 37·9°. In 1887, the M.T. was 39·9°; in 1888, 43·6°; in 1889, 43·8°; in 1890, 39·2°; in 1891, 43·0°; and in 1892, 39·6°.

The mean height of the barometer was 29·868 inches, or 0·013 inch below the corrected average value for December—namely, 29·875 inches. The mercury rose to 30·706 inches at 9 a.m. of the 30th, and fell to 28·530 inches at noon of the 10th. The observed range of atmospheric pressure was, therefore, no less than 2·176 inches—that is, a little less than two inches and two-tenths.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 42.8° , or only 0.5° below the value for November, and 6.0° below that for October, 1893. Using the formula, $\text{Mean Temp.} = \text{Min.} + (\text{max.} - \text{min.}) \times .52$, the value was 43.7° , or 2.2° above the average mean temperature for December, calculated in the same way, in the twenty-five years, 1865-89, inclusive (41.5°). The arithmetical mean of the maximal and minimal readings was 43.5° , compared with a twenty-five years' average of 41.8° . On the 15th, the thermometer in the screen rose to 56.7° —wind, S.W.; on the 2nd, the temperature fell to 28.3° —wind, W.N.W. The minimum on the grass was 23.0° , also on the 2nd. There were only 3 days of frost in the screen and 16 days of frost on the grass.

The rainfall was 2.482 inches, distributed over as many as 19 days. The average rainfall for December in the twenty-five years, 1865-89, was 2.404 inches, and the average number of rainy days was 16.9. The rainfall, therefore, and the rainy days were above the average. In 1876 the rainfall in December was very large— 7.566 inches on 22 days. In 1872, 4.932 inches fell on as many as 24 days; and in 1868 (which was otherwise a fine and dry year), 4.749 inches fell on as many as 27 days. On the other hand, in 1867, only $.771$ inch was measured on 13 days; and in 1871 the December rainfall was only $.797$ inch on 15 days. In 1885, only $.742$ inch of rain was measured on but 10 days; but in 1886 the rainfall was 3.848 inches, distributed over as many as 21 days. In 1887 (the "dry year"), the rainfall was 1.223 inches on 19 days; in 1888, 2.911 inches on 17 days; in 1889, 1.554 inches on 15 days; in 1890, 1.856 inches on 11 days; in 1891, 3.299 inches on 21 days; and in 1892, only $.795$ inch on 10 days.

Lunar halos appeared on the 14th and 18th. High winds were noted on 17 days, and attained the force of a gale on 5 occasions—the 6th, 8th, 10th, 15th, and the 19th. The atmosphere was more or less foggy in Dublin on the 2nd, 17th, 27th, 28th, 29th, 30th, and 31st. Neither snow nor sleet fell in Dublin, although the mountains were covered with snow on the 18th and 20th. Hail fell on the 18th. Thunder and lightning occurred on the 8th.

Cold, bright weather prevailed during the first two days of the month, especially in Ireland, where an anticyclone of considerable intensity formed on Friday, the 1st, in the wake of two depressions which had passed south-eastwards across Western Europe immediately before. The frost in Scotland was very sharp on the morning of the 1st, and the wave of cold travelled southwards, so that at 8 a.m. of the 2nd the thermometer read only 17° at Loughborough.

As regards the week ended Saturday, the 9th, at first the weather was mild and damp in Ireland, rainy in Scotland, very frosty in the S. and

S.E. of England. Thus, at 8 a.m. of Sunday the thermometer registered 49° at Belmullet, 48° at Stornoway, in the Hebrides, where 1·2 inches of rain had fallen in the previous 24 hours; but only 21 in London. An anticyclone, in which the barometer exceeded 30·5 inches, lay over the S.W. of Ireland; but a cyclonic system was skirting the north coast of Scotland. On Tuesday the barometer gave way quickly as a series of large and deep atmospheric depressions began to encroach on the shores of the North-West of Europe from the Atlantic. These, as is usual, brought unsettled weather, high but unsteady temperatures, gales and rains, to the greater part of the British Isles. On Thursday night a depression of exceptional magnitude rapidly passed northeastwards outside the north-west and north coasts of Ireland. The barometer fell to 28·27 inches at Malin Head on Friday morning, and to 27·97 inches at Stornoway at 4 p.m. of the same day. During the preceding night strong S.W. and W.S.W. gales, and thunder and hail showers prevailed at many stations, and these were renewed in the course of Friday afternoon. At Navan, Co. Meath, lumps of ice fell in a thunder-shower towards evening. At night lightning was seen on the N.W. horizon from Dublin. Saturday was a bright, cold day, and the week closed with a promise of frost, which, however, was not fulfilled. In Dublin the mean height of the barometer was 29·817 inches. Pressure varied from 30·393 inches at 9 a.m. of Sunday (wind, W.) to 28·937 inches at 7.30 a.m. of Friday (wind, W.S.W.). The corrected mean temperature was 44·9°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 44·1°. On Sunday the screened thermometers sank to 33·7°, on Wednesday they rose to 53·1°. The rainfall amounted to .352 inch on three days. The maximal fall in 24 hours was .179 inch on Thursday. The prevalent winds were W.N.W., W., and W.S.W.

Atmospheric pressure and temperature were in a most unstable condition throughout the N. and W. of Europe and over the adjoining parts of the North Atlantic during the week ended Saturday, the 16th. Consequently, the weather was extremely unsettled, strong southerly and south-westerly gales prevailed, and heavy rainfalls occurred on all exposed coasts. On Sunday a very deep depression advanced northeastwards over Ireland. Strong S.E. to S.W. gales blew and heavy rain fell on the S. and E. coasts and over the Irish Sea during the forenoon. In Dublin the barometer fell to 28·530 inches about midday. During the next two days a number of subsidiary depressions crossed England, keeping the weather unsettled and showery. A thunderstorm occurred at Valentia Island on Monday night, and lightning was seen over the North Channel at the same time. Early on Wednesday morning a new and very deep depression was found over Central Ireland, where the barometer scarcely exceeded 28·5 inches (28·52 inches at Parsonstown, King's Co.). As pressure was at this time everywhere low, no serious gales followed, but

rain fell abundantly in nearly all parts of the United Kingdom. A singularly rapid recovery of atmospheric pressure ensued, so that the Thursday morning readings exceeded those of Wednesday morning by 1.31 inches at Parsonstown, 1.29 inches in Dublin and at Valentia, and 1.22 inches at Roche's Point, Co. Cork. An anticyclone now formed over France, where temperature fell fast; but strong S.W. winds and gales, and high readings of the thermometer were reported from Ireland, Scotland, and many parts of England on both Friday and Saturday. In Dublin the mean atmospheric pressure was 29.537 inches, the barometer ranging between 28.568 inches at 9 a.m. of Wednesday (wind, S.S.W.), and 30.218 inches at 1 a.m. of Saturday (wind S.W.). The corrected mean temperature was 43.5°; the mean dry bulb readings at 9 a.m. and 9 p.m. were 43.1°. On Friday the screened thermometers rose to 56.7°, having fallen to 32.8° the previous day. The rainfall was .862 inch on five days, .460 inch being measured on Tuesday and .351 inch on Sunday. The prevalent wind was S.W. Gales occurred from S.E. on Sunday, and from S.W. on Friday.

Throughout the week ended Saturday, the 23rd, atmospheric pressure remained in a very disturbed condition, rain fell frequently—in Ireland and Scotland in particular—and blustering S.W. and W. winds or gales were very prevalent, especially from Tuesday to Friday inclusive. The barometer stood highest for the most part over the Peninsula and Central Europe, lowest off our extreme W. and N.W. coasts. Hence, the winds were strong from S.W. and W. Sunday was fine, bright, and mild, but rain fell at night. Monday was colder, and snow lay on the higher ranges of the Dublin Mountains. The barometer fell fast during the ensuing night, and the wind rose to a gale from S. At 8 a.m. of Tuesday the barometer was down to 28.80 inches at Belmullet, in Mayo. In the course of Tuesday night a still deeper secondary depression advanced to St. George's Channel from the S. W., the barometer reading only 28.60 inches at Pembroke and 28.64 inches at Roche's Point at 8 a.m. of Wednesday. This low pressure system brought with it gales and heavy rains—a strong S.W. gale being felt in the S. of England and a violent N.W. gale over the western parts of the English Channel. Hail fell in the W. and N. of Ireland and thunder occurred at Ardrossan. Thursday was a fine, bright day, but on Friday forenoon another rainfall occurred in Ireland. This was followed by a beautiful day, with which the week closed. In Dublin the mean height of the barometer was only 29.562 inches, pressure ranging between 30.166 inches at 9 a.m. of Sunday (wind, S. by W.) and 28.784 inches at 9 a.m. of Wednesday (wind, N.N.E.). The corrected mean temperature was 44.0°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 43.0°. On Thursday the thermometers sank to 34.9°, on Friday they rose to 52.8°, in the screen. The prevailing direction of the wind was S.W. Rain fell on

each day of the week to the total amount of .683 inch, .256 inch being measured on Tuesday.

The week ended Saturday, the 30th, witnessed the gradual substitution of anticyclonic for cyclonic conditions over the extreme West of Europe, and the consequent dying out of the strong, squally S.W. winds which had so long been blowing. It also saw the establishment of calms and fogs, as well as a general and decided fall of temperature towards the close of the period. At the beginning, depressions skirted the west coasts of Ireland and Scotland, and rain fell heavily in these countries and in smaller quantities over England. On Sunday a warm, bright morning was followed by a downpour of rain in Dublin, where the measurement was just half an inch. Christmas Day (Monday) was finer and cooler, but sharp showers fell shortly after midday in this city. A succession of mild, dull, damp days followed, and in London dense dark fogs prevailed on Wednesday and the next two days. By Saturday, however, an anticyclone of great size and intensity had been fully established over central and western Europe and the weather brightened and became much colder. At 8 a.m. of Friday the barometer stood at 30.79 inches over the North of Germany, and the thermometer was as low as 2° F. at Munich, having fallen there 29° in the previous twenty-four hours. On Friday evening the barometer rose to 30.86 inches in Berlin. Sharp frost held in Germany, France, and the centre of England on Saturday. In Dublin the mean height of the barometer was 30.819 inches, pressure ranging between 29.641 inches at 9 p.m. of Sunday (wind, W.S.W.) and 30.706 inches at 9 a.m. of Saturday (wind, S.). The corrected mean temperature was 46.4°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 45.4°. On Sunday the maximum in the shade was 55.8°; on Saturday the minimum was 35.9°. Rain fell on four days to the total amount of .585 inch; .499 inch being measured on Sunday. The prevailing winds were southwesterly.

Sunday, the 31st, was a raw, damp, very cold day in Dublin. In the morning a dense vapour-fog prevailed, and as the thermometer stood below freezing point thick rime was deposited on trees and shrubs. On this day the distribution of both atmospheric pressure and temperature over Western Europe was peculiar. An anticyclone had its centre over the southern half of Ireland, the barometer reading 30.63 inches at 8 a.m. at Parsonstown. A deep depression was at the same moment travelling eastwards across the north of Russia, the barometer being as low as 28.60 inches at Archangel. The thermometer at the hour named read 46° at Malin Head, but only 31° at Valentia Island in Kerry and 27° at Parsonstown. Dublin was 11° colder than Holyhead. At Nairn, in the N.E. of Scotland, the temperature was 49°, in Paris it was 18°, or 31° lower. On the Christiania Fjord it was 42°, at Biarritz 28°, and at Munich 1°. Scilly was 20° warmer than London (44° compared with 24°), and Stockholm was 9° warmer than Nice (37° against 28°).

The rainfall in Dublin during the year ending December 31st amounted to only 20.493 inches on 174 days, compared with 25.644 inches on 196 days in 1892, 27.820 inches on 184 days in 1891, 27.562 inches on 200 days in 1890, 27.272 inches on 193 days in 1889, 28.679 inches on 190 days in 1888, 16.601 inches on 160 days in 1887, and a 25 years' average of 27.696 inches on 194.8 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in December, 1893, was 2.940 inches, distributed over 20 days. Of this quantity .540 inch fell on the 12th, and .420 inch on the 20th.

From January 1st to December 31st, 1893, rain fell at Knockdolian, Greystones, on 170 days, and to the total amount of 22.526 inches.

At Cloneevin, Killiney, Co. Dublin, 2.04 inches of rain fell during December on 20 days. The maximal fall in 24 hours being .29 inch on the 19th. The average rainfall for December at this station is 2.117 inches on 15 days.

From January 1st to December 31st, 1893, rain fell at Cloneevin, Killiney, on 176 days to the total amount of 18.05 inches.

RAINFALL IN 1893,

At 40 Fitzwilliam-square, West, Dublin.

Rain Gauge.—Diameter of funnel, 8 in. Height of top—Above ground 3 ft. 2 in.; above sea level, 50 ft.

Month	Total Depth	Greatest Fall in 24 Hours		Number of Days on which .01 or more fell
January,	Inches	Depth	Date	
January,	2.289	.613	31st	19
February,	2.669	.480	9th	22
March,288	.101	2nd	8
April,	1.046	.370	17th	7
May,	1.666	.720	20th	10
June,	1.716	.492	26th	12
July,	2.042	.871	12th	14
August,	2.718	.516	18th	16
September,729	.174	6th	14
October,	1.083	.322	14th	16
November,	1.870	.821	16th	17
December,	2.482	.499	24th	19
Total,	20.493	—	—	174

RAINFALL AT KILLINEY, CO. DUBLIN, IN 1893.

Mr. Robert O'Brien Furlong, M.A., Univ. Dubl., reports that rain fell in 1893, at his residence, Cloneevin, Killiney, Co. Dublin, on 176 days to the total amount of 18.05 inches. The average figures for eight years were 25.518 inches on 174.85 days. In 1887—the Jubilee year—the

rainfall at this station was only 17.64 inches on but 148 days. In that year 1.05 inches fell on one day. The maximal fall on any one day in 1893 was only .63 inch on April 16. Periods of absolute drought—14 days without rain—occurred from April 1 to 14 and from June 7 to 21. From March 19 to April 14 only .02 inch fell.

The rainfall was 7.203 inches in defect of the average annual measurement of the twenty-five years, 1865–89, inclusive—viz., 27.696 inches.

It will be remembered that the rainfall in 1887 was very exceptionally small—16.601 inches, the only approach to this measurement in Dublin being in 1870, when only 20.859 inches fell, in 1884, when the measurement was 20.467 inches, and in 1893 with its rainfall of 20.493 inches. In seven of the twenty-five years in question the rainfall was less than 26 inches, and in 1885 it was 26.614 inches.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32.966 inches—or as nearly as possible double the fall of 1887—fell on 220 days. Only twice since these records commenced has the rainfall in Dublin exceeded that of 1886—namely, in 1872, when 35.566 inches fell on 238 days, and in 1880, when 34.512 inches were measured on, however, only 188 days.

In 1893, there were 174 rainy days, or days upon which not less than .01 inch of rain (one hundredth of an inch) was measured. This was considerably in defect of the average number of rainy days, which was 194.3 in the twenty-five years, 1865–89, inclusive. In 1868—the warm dry year of recent times—as well as in 1887, the rainy days were only 160, and in 1870 they were only 145. In 1868, however, the rainfall amounted to 24.935 inches, or more than 8 inches above the measurement in 1887, and even in 1870, 20.859 inches were recorded.

The rainfall in 24 hours from 9 a.m. to 9 a.m. exceeded one inch on two occasions in 1892—viz., May 28th (2.056 inches) and August 16th (1.310 inches). On no occasion in 1893 did one inch of rain fall on a given day in Dublin, the maximal daily measurements were .871 inch on July 12th, and .821 inch on November 16th.

Included in the 174 rainy days in 1893 are 17 on which snow or sleet fell, and 21 on which there was hail. In January hail was observed on 4 days, in February on 6 days, in March on 2 days, in April, August and October on 1 day, in November on 5 days, and on one day in December. Snow or sleet fell on 4 days in January, on 7 days in February, on 2 days in March, on 4 days in November, and on not one occasion in December. Thunder occurred on ten occasions during the year—three times in May twice in July and August, and once in June, September, and December. Lightning was also seen on four occasions in October, twice in August and September, and once in February and December.

The rainfall was distributed as follows:—5.196 inches fell on 49 days in the first quarter, 4.428 inches on 29 days in the second, 5.484 inches

on 44 days in the third, and 5.385 inches on 52 days in the fourth and last quarter.

The rainfall in the first six months was 9.624 inches on 78 days—that is, not one half of the year's record. In February the rainfall was 2.669 inches on 22 days, in August 2.713 inches fell on 16 days, and in December 2.482 inches on 19 days.

Of the 5.385 inches which fall in the fourth quarter of the year, only 1.033 inches were measured in October on 16 days, and 1.870 inches in November on 17 days. In December the rainfall was both considerable and frequent.

Aurora borealis was observed on three occasions—namely, on February 16th, September 1st, and October 29th. More or less fog prevailed on 38 occasions—4 in January, 3 in February, 8 in March, 2 in April, 3 in August, September, and October, respectively; 5 in November, and 7 in December. The March fogs were very dry. High winds were noted on 130 days—18 in January, 11 in February and March, respectively; 4 in April and May, respectively; 7 in June, 9 in July, 10 in August, 14 in September, 10 in October, 15 in November, and 17 in December. The high winds amounted to gales (force 7 or upwards according to the Beaufort scale) on 24 occasions—4 in January and February, respectively; 1 in March and June, respectively; 3 in August, 2 in October, 4 in November, and 5 in December.

Abstract of Meteorological Observations taken at Dublin (40 Fizwilliam-square, West) during the Year 1893.

MONTH	Abs. Max.	Date	Abs. Min.	Date	Mean Daily Max.	Mean Daily Min.	Rainfall	Rainy Days	Mean Height of Barometer	Highest Pressure	Date	Lowest Pressure	Date	Prevailing Winds		
January	° 54·9	80th	° 20·2	3rd	° 44·7	° 36·9	2·239	19	30·053	30·559	21st	29·178	28th	W., N.W.		
February	- 56·4	18th	26·0	25th	47·5	37·8	2·669	22	29·604	30·218	4th	28·790	14th	W., S.W., S.		
March	- 64·8	29th	34·0	17th	54·6	41·5	2·88	8	30·085	30·411	10th	29·267	1st	W., E.N.E., E.S.E., E.N.W.		
April	- 66·8	22nd	36·2	14th	58·2	44·6	1·046	7	30·171	30·575	8th	29·793	19th	N.W., E.N.E., N.W.		
May	- 70·2	11th	42·8	31st	62·7	50·6	1·666	10	30·088	30·455	10th	29·407	19th	E., S.E., W.N.W.		
June	- 74·7	19th	46·9	28rd	66·3	53·4	1·716	12	30·002	30·898	7th	29·820	27th	E., N.W., S.E.		
July	- 74·6	23rd	50·0	22nd	68·1	55·0	2·042	14	29·896	30·284	27th	28·429	19th	N.W., W., N.E.		
August	- 79·8	15th	47·9	26th	69·6	56·4	2·713	16	29·965	30·396	29th	29·290	21st	S.W., N.W.		
September	- 72·0	5th	38·2	21st	62·6	49·1	° 729	14	29·843	30·345	12th	29·052	29th	N.W., W.		
October	- 67·7	21st	31·7	31st	56·0	48·9	1·083	16	29·855	30·507	23rd	29·061	4th	W., S.W.		
November	- 57·6	8rd	30·8	7th	48·7	38·9	1·870	17	30·058	30·594	21st	28·719	16th	N.W., N., N.E.		
December	- 56·7	16th	28·8	2nd	48·1	38·9	2·482	19	29·863	30·706	30th	28·680	10th	S.W., W.		
Extremes, and Totals, and Means	° 79·8	Aug. 15th	°	Jan. 3rd	20·2	57·3	° 45·6	51·50	Ins. Days 20·498	174	Ins. 29·954	30·706	Dec. 30th	Ins. 28·580	Dec. 10th	N.W., W., S.W.

JOHN WILLIAM MOORE, B.A., M.D., Univ., Dubl.; F.R.C.P.I.;
F. R. Met. Soc.

PERISCOPE.

COCAIN POISON.

To counteract the poisonous effects of cocaine given hypodermically, M. Gauthier combines it with solution of nitro-glycerine. His formula is as follows:—Distilled water, 10 grammes; hydrochlorate of cocaine, 0·20; 1 per cent. solution of trinitrin, 10 drops; mix and make a solution.

FORMOL.

THE value of formol in 1 in 20,000 solution as a bactericide has been reported in many journals, and just when we are coming to believe in its virtues, M. Schmidt assures us (*Répertoire de Pharmacie*) that formol as a germicide in less than 1 in 100 is useless, and that a solution of formol of that strength acts as a powerful caustic, resembling a deliquescent solution of caustic potash.

OXYGEN.

M. VILLON has been conducting a number of experiments with oxygen gas on wines, alcohols, and oils. Brandies and wines submitted to this treatment acquired the flavour which time alone was credited with producing. Atomised wine injected into a vapour of oxygen gas acquires a rich, mellow flavour, which it had not previously known.—*Répertoire de Pharmacie*, No. 10.

MURIA PUAMA.

MURIA PUAMA, a Brazilian plant, credited by the natives with having well-marked aphrodisiac properties, is introduced as an addition to our already long list of new remedies. Gall found the alcoholic and aqueous extracts to act as excitants to the spinal cord; but in nine cases treated with the fluid extract by Kleesattel no aphrodisiac effects were noticed.

PHENATE OF COCAIN.

PHENATE OF COCAIN is recommended by von Oefele as superior to the hydrochlorate of cocaine in that it is antiseptic and soluble in albolene.

TRIONAL.

KIPPERS, in a thesis read this summer at Würzburg, draws the following conclusions from his experience of trional:—It is a rapid hypnotic, especially useful in mental excitement. The headache which occasionally follows on its use quickly disappears. Thirty grains are a full dose. Disorders of the digestion seldom follow its use. Cardiac troubles contra-indicate its use. The anhidrotic action of the chemical is very marked, three to four grains arrest profuse perspiration.

BICHROMATE OF POTASSIUM.

DR. P. HUNT recommends the bichromate of potassium as an expectorant in the capillary bronchitis of children. He gives 0·003 gr. mixed with sugar. The daily amount for a child one year old being 0·015 gr.—*Les Nouveaux Remèdes*, No. 17.

ANTISEPTIN.

ANTISEPTIN, introduced as a definite chemical compound is (*Ephemeris*) a mixture of sulphate of zinc, 85 parts; boric acid, 10 parts; iodide of zinc, 2·5 parts; thymol, 2·5 parts.

CHLORYLE.

THIS new anaesthetic is a mixture of chloride of methyl and chloride of ethyl. It is liquefied by a temperature of 0 °F. Chloryle is used in dentistry and minor operations.—*Les Nouveaux Remèdes*, No. 17.

GLANDERS.

T. K. GRAVELSKY reports two cases of recovery from glanders. The inflammation was localised on the hand, and after incising the abscess he prescribed frictions of mercurial ointment to the amount of a drachm daily.—*Les Nouveaux Remèdes*, No. 17.

INFLAMMATION.

IN a paper read at Heidelberg, Professor Unna (*St. Louis Medical and Surgical Journal*), thus defines inflammation—"A tissue injury (progressive or retrogressive, exudative or merely nutritive), occasioned by the issue of an exudate from the blood-vessels as a result of the presence of a chemotactically active body in the tissue."

ANTISEPTIC POWDER.

R. BORIC ACID, 70 parts; iodoform, 25 parts; salicylic acid, 4 parts; essence of eucalyptus, 1 part. Mix intimately.

BENZO-NAPHTHOL.

F. KUHN, in a paper read before the Medical Society of Giessen, sums up the therapeutics to benzo-naphthol—"it is absolutely useless, and has no antiseptic action on the intestinal contents.

THE MEDICAL WEEK.

THIS periodical is *La Semaine Médicale* in English, published in Paris. The number now before us is the 31st. The original journal has been running for twelve years, and boasts of having the largest number of subscribers in the world, issuing more than 1,000,000 copies. An edition in Spanish is also published.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

New "Soloids" and "Tabloids."

Messrs BURROUGHS, WELLCOME, & Co., of Snow Hill Buildings, London, E.C., have recently introduced a number of novelties under the headings "Soloids" and "Tabloids." They have sent us samples of tabloids of compressed agathin (salicyl-alpha-methyl-phenyl-hydrazone), which is recommended as a reliable analgesic. Each tabloid contains 4 grains, and one or two tabloids may be swallowed as a dose entire with a draught of water or other fluid. Other specimens of tabloids are those of iodopyrin (5 grains in each), dermatol (5 grains) for use in persistent diarrhoea, and benzosol (benzoyl-guaiacol, 5 grains). Other preparations are:—

"*Tabloids*" *Cubeb Comp.*—At this season of the year this formula will probably be particularly useful to physicians and specialists in throat diseases. When the "tabloids" are dissolved upon the tongue, the cubeb will be found to exert a pleasant, soothing effect upon the mucous membrane, while the discutient action of the chloride of ammonium materially enhances their value.

"*Soloids*" of *Iodic-Hydrgarg.*—Iodic-hydrgarg. is mercuric-potassio-mercuric-iodide, and is said to possess several times the bactericidal strength of hydrarg. perchlor., as proved by experiments upon cultures of the anthrax bacillus, streptococci, and staphylococci. Being readily soluble, it is quickly diffused in the tissues. The "soloids" are very convenient for the immediate preparation of antiseptic solutions.

"*Tabloids*" of *Iodic-Hydrgarg.*, $\frac{1}{8}$ th gr.—Internally administered, iodic-hydrgarg. has been used with success in the treatment of syphilis and infantile and other fermentative diarrhoeas. Unlike other mercuric salts, it is not toxic in ordinary doses, and is promptly eliminated from the system.

Soda Mint Granules.—A very pleasant form for administering this combination of bicarbonate of sodium with peppermint, so useful in cases of acidity and kindred ailments. The granules are sugar-coated, and children, ladies, and fastidious patients will find them very pleasant to the taste.

"*Tabloid*" of *Antipyrin*, $2\frac{1}{2}$ grs., *sugar-coated*.—This formula has been recently added to the list, the "tabloids" being intended for administration to children, the sugar-coated form is preferred by many for this purpose.

Bland's "Tabloids" (sugar-coated).—In these the ferrous sulphate and sodium carbonate are only mechanically combined, the double decomposi-

tion not taking place until the "tabloid" comes in contact with the juices of the stomach. The sugar coating prevents any possibility of premature chemical reaction, so that the absolutely unoxidised condition of the resultant ferrous carbonate is guaranteed. The "tabloids" are further very pleasant to take, and are quite free from the bulkiness and other objectionable characteristics of the old method of administering Bland's formula. The firm prepare also Bland's "tabloids" with aloin, and Bland's "tabloids" with arsenic, which will no doubt be found of value in the treatment of anaemia, chlorosis, and kindred complaints.

Ipecacuanha sine Emetina "Tabloids," 5 grs.—These are specially indicated in dysentery. Ipecacuanha has proved of the greatest use in the treatment of this disease. It has the power of arresting the inflammatory action of the bowel, checking the liquid and bloody evacuations, and often effecting a complete cure. Deprived of the emetic principle, the distressing vomiting which accompanies its administration is entirely obviated, and its value is correspondingly enhanced.

Lanoline Pine Tar Soap possesses marked stimulant and antiseptic properties. In irritable conditions of the skin, it will be found soothing and cleansing to the tissues, and destructive to any micro-organisms which may exist in them. It is also to be recommended for washing the hair.

Eucalyptus Oleosa is a pure and carefully rectified oil, and is said to contain 10 per cent. more eucalyptol than eucalyptus globulus, its bactericidal and medicinal qualities being proportionately enhanced. It is strongly antiseptic, non-poisonous, devoid of acrid and irritating properties, and possesses, moreover, a pleasant refreshing odour. For preventing the development of bacteria and micro-organisms generally; for inhalation in pulmonary affections, as a gentle stimulant, carminative and anti-spasmodic when taken internally, experience has shown that its virtues entitle it to a high place.

ERRATUM.—In the number of the Journal for December, 1893 (Vol. XCVI., No. 264, Third Series), the name of the author of a work on the "Antiseptic Dry-air Treatment of Consumption," reviewed at page 520, is incorrectly given as "John J. Hartnell, M.D." It should be "John J. Hartnett, M.D."

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

MARCH 1, 1894.

PART I. ORIGINAL COMMUNICATIONS.

ART. VI.—*Treatment of Fractures of the Patella with Separation.* By W. I. WHEELER, M.D., and Master of Surgery of the University of Dublin; Fellow, Member of Council, and Past President of the Royal College of Surgeons; Surgeon to the City of Dublin Hospital, &c., &c.

MANY years ago I brought under the notice of the Surgical Society in Ireland an apparatus for the treatment of fractures of the patella with separation of the fragments, and I subsequently read a paper upon the subject at the annual meeting of the British Medical Association held in Cork in 1879.

This subject had previously occupied my attention from the knowledge that there was a considerable difference of opinion as to the most efficient way of adjusting the fragments, many like myself up to that time holding there was not any satisfactory method of securing bony union by any of the numerous plans advocated—e.g., by position, Malgaigne's hooks, pinning the fragments together, to finally opening the joint and suturing the bones. I was then able to record results of cases treated by the apparatus which I had invented for this purpose, and also exhibited a specimen of osseous union. In that communication I alluded to the most common form of fractured patella in which separation between a superior and inferior fragment occurs.

As may be observed (Fig. 1.), the apparatus I use is a hollow wooden splint extending from above the middle of the thigh to

the sole of the foot, at which point a foot-board (E) is attached by means of a hinge. This splint having two transverse bars, is fitted into a long box splint, in the sides of which it travels horizontally. That portion of the splint where the limb rests can be elevated or depressed, as required, by means of perpendicular slots cut through the sides of the box splint. Thus the splint can be adjusted to suit a long or a short limb, which can be elevated or lowered at pleasure, and the foot can be placed at any angle.

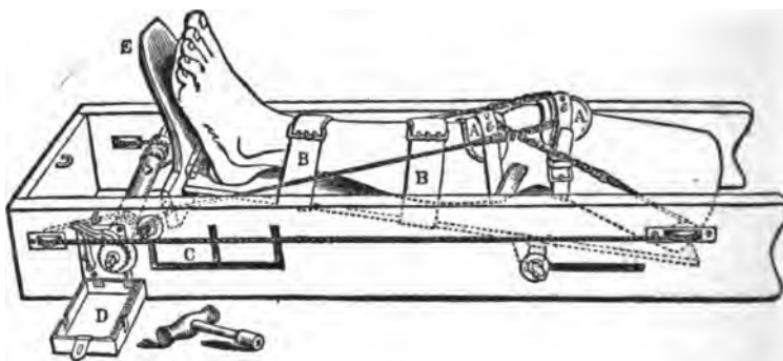


Fig. 1.—A A, Adjusting Pads ; B B, Straps securing Limb ; C, Slots ; D, Brass Cover to Lock ; E, Foot Board ; ee, Buttons on adjusting pads for strap.

The hollow splint is fixed in position by means of thumbscrews, which fit into the transverse bars before mentioned. Two semi-lunar pieces of metal, softly padded, are fixed, one above, the other below, the fractured patella, by means of leather straps which pass round the limb. The leg is secured to the splint by two broad web straps, one round the calf, the other at the ankle (B B). The foot is bandaged to the foot-board. A roller with rack-adjustment is fitted in the box-splint below the foot-board. From this roller start four cords fitted through brass sheaves. The cords are attached, two to the upper and two to the lower metal pads by means of chains and light hooks. The roller is turned with a key, and, acting upon the cords, causes the metal pads simultaneously to approach each other, thereby bringing the fragments into apposition. The rack is covered by a brass box (D), which can be locked so that the adjustment of the splint cannot be interfered with by the patient.

In adjusting the apparatus which is here depicted much care must be taken in the first application of the adjusting pads. Both time and patience are required. If the pads are once properly adjusted they need not be altered until union is obtained. The surgeon should hear or feel the fragments grate together, and should draw the soft tissues well upwards and downwards before applying the pads; the danger of the soft tissues becoming an impediment to union is thus prevented. There is not any occasion to raise the aponeurosis from between the bones with a needle; the crepitation that should be obtained is a sufficient guarantee of the perfectness of the adjustment.

The person from whom the bony specimen (Fig. 2) was taken

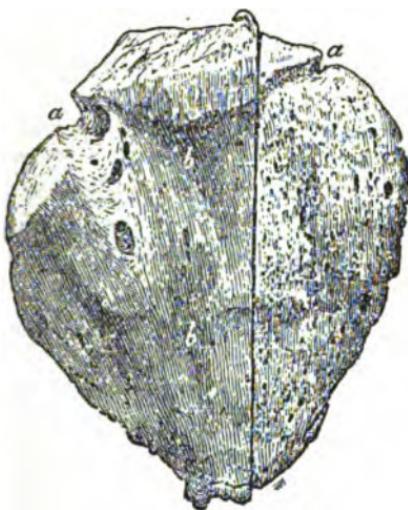


Fig. 2.—*a b a*, Line of Fracture; *b b*, Signs of an incomplete longitudinal Fracture.

died of phthisis two years and five months after being discharged from the City of Dublin Hospital, where he was admitted under my care in September, 1875, suffering from transverse fracture of his right patella, the separation between the fragments being $2\frac{1}{2}$ inches. Muscular action was the chief cause of this displacement. He was placed upon my apparatus immediately; the effusion was subdued in 11 days, when the fragments were brought together by means of the adjusting pads. On the 5th of November a starch bandage was applied; on the 13th of December he was discharged cured. His avocation

required him to get up and down out of his cart (which he did over the wheel) about 440 times a week. This was a crucial test of the firmness of the union. He had all the normal motions of his knee-joint, the patella moving freely upwards, downwards, and laterally. In the man from whom the specimen described (Figs. 2 and 3) above was taken the measurements

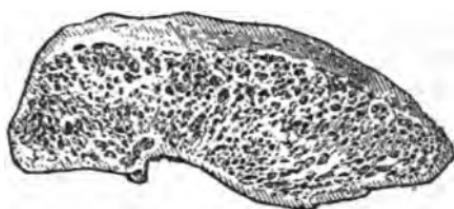


Fig. 8.—Showing perfectly continuous Bone.

of the limbs corresponded. After his death I obtained the patella that had been fractured. On the 22nd of November, 1878, my friend, Professor Macalister, then of Trinity College, Dublin, now of Cambridge, wrote me that he had macerated and cleaned the specimen. Having made a longitudinal section through the patella he found it bony throughout, and removed the articular cartilage from its posterior surface. On the anterior aspect of the bone there was no visible trace of fracture, save a slight depression on the inner side, upon the lower fragment and outer facet there were signs of an incomplete longitudinal fracture (Figs. 2 and 3).

That there are, and have been many diversities of opinion as to the best method of obtaining bony union in cases of fracture of the patella with separation of the fragments, is evident from the multitudinous writings upon the subject. The late Mr. Syme advocated a modification of Malgaigne's method by not attaching the screw-hooks directly through the skin, but to a layer of thick mole-skin plaster applied above and below the joint, the limb being placed on an inclined plane, or slung on a corresponding inclination.

The late Mr. Callendar pursued a method, which is described in St. Bartholomew's Hospital Reports, consisting of the application of Neville's Splint, to the foot-piece of which is clamped an iron with two arms projecting beyond the foot-piece. The fragments are approximated by plaster with the assistance of a pulley.

Mr. McGill supports Mr. Pridgin Teale's rest of the limb between sand bags.

Mr. Lund, in a paper upon a new method of treating simple fracture of the patella, assumes that the chief, if not the only cause of non-union in such cases, is imperfect apposition of the broken fragments. Having for the first six or eight days kept the limb extended on a back-splint and slightly raised, an evaporating lotion of ice is applied until nearly all effusion within and external to the joint has subsided. Then while the patient is under the influence of an anæsthetic, a strong steel pin is drilled through each portion of the patella from the extern to the anterior border. A small hole is made in the skin by the entrance and exit of the pin, great care is taken in piercing the patella fragments so that the point of the screw pin does not injure the articular surface of the bone. It is directed that these screw pins should be placed as nearly as possible in parallel lines, and drawn very closely together until the broken surfaces of the bone are brought into perfect contact by means of a double screw instrument which holds them firmly in position. While so placed the ends of the pins are enclosed in the coils of very thin copper wire so arranged in repeated turns as to gain great strength; and then when the pins are completely fixed the double acting screw instrument is removed, the broken surfaces of the bone thus remaining, it is claimed, in absolute contact.

Mr. Mayo Robson has also detailed a plan he states will secure a bony union in transverse fracture of the patella, without opening the joint. The skin over and around the joint is cleaned and rendered aseptic, and the joint is then aspirated. He uses two long steel pins with glass heads, then draws the skin well up over the upper fragments, and introduces one pin transversely through the skin and muscle just above the upper fragment, repeating the operation with the other pin at the upper end of the ligamentum patellæ. Gentle traction of the pins then easily brings the fragments into apposition.

There are many other inventions for the treatment of fracture of the patella too numerous to be mentioned. I have only alluded to those methods which have received more attention than others, and to exemplify the diversity of opinion concerning treatment.

Mr. MacEwen, in a communication upon "The Chief Cause of

Want of Union in Transverse Fracture of the Patella, and How to Obviate it," advocates suturing the patella together.

An examination of the causes of separation of the fragments shows that the continued action of the quadriceps extensor muscle plays an important part. So, also, does the effusion (which is not purely synovial, or haemorrhagic, but mixed); also the folding of the aponeurosis of the extensor muscle over the fractured extremities, and in some old cases the permanent shortening of the extensor muscle itself. The theory has been propounded that, when the effusion is subdued, the quadriceps extensor muscle remains in a state of inaction. This is not my experience. I have observed a spasmodic action of the quadriceps, and the patients were able to make the muscle act, although it was difficult to persuade them to do so. I have also felt it contract thirteen days after the accident that caused the fracture of the patella, and have seen increased separation consequent upon contractions.

When the position of a limb is lowered there is an increased space between the fragments; nor is this caused entirely by the falling down of the lower fragments, for I have frequently marked the inferior edge of the lower fragments before lowering the limb. What, then, is the cause of increased separation when effusion has subsided? In every case of fractured patella that I have seen, position has influenced the upper fragments, except in two, where the quadriceps extensor muscle was antagonised by the ligaments of Barkow being intact. In such cases only is the treatment by position at all admissible. In no case have I found the quadriceps weakened or thin when bony union has been obtained.

The only way in which I can account for the weakness and atrophy of the quadriceps, which is said to follow this accident, is by altered blood or nerve nutrition to the muscle, caused perchance by the method of treatment, or that the result has been weak ligamentous union, or the muscle not having a fixed point upon which to work, and the patient consequently not exerting the limb as much as the other—in fact, sparing it. The muscle from such causes becomes weakened and thinned. This is in a measure verified by a case that died in the City of Dublin Hospital some ten years ago. The man, who had been treated for fractured patella by the late Professor Geoghegan, had very close but ligamentous union. He was five-eighths of

an inch less round the circumference of the injured limb above the patella than the sound one; and he told me although he had excellent use and strength in his leg, he "did not make so free with it as with the other one."

There is nothing to show that it is from want of power in the bone to produce osseous material that bony union does not take place. If the fragments are kept in perfect contact by means of a suitable apparatus, bony union becomes so complete that not a vestige of the injury can be traced. Besides, perpendicular fractures readily admit union by bone.

It would be unnecessary to discuss the obvious advantages of bony over ligamentous union. M. Després appears to advocate the latter because he can relate cases where patients sustained fractures on two different occasions in the same bone. He states that it was the bone and not the ligamentous union that gave way, and thus attempts to prove that the fibrous union is stronger than the bony. Anyone upon reflection will understand that the seat of the fracture depends upon the position of the limb at the time the fracture takes place.

I have not found it necessary to deviate from the line of treatment I advocated some years ago. I will therefore give an epitome of three out of some fourteen cases which have come under my notice during the last thirteen or fourteen years, and of which I have an accurate record:—

CASE I.—In November, 1881, a healthy, muscular man was admitted into the City of Dublin Hospital, suffering from a transverse fracture of his left patella. He fell when getting up on his car, and muscular contraction caused the fracture. The distance between the portions of the broken bone measured $2\frac{1}{4}$ inches. There was considerable effusion. His limb was placed upon my splint, and local and other treatment adopted to subdue the effusion. After a lapse of seven days the adjusting pads were applied, and the upper and lower fragments brought into apposition and proved to be in direct contact, as crepitus could be both felt and heard. The patient remained six weeks in hospital, a plaster bandage having been applied previous to his discharge. I examined his knee-joint very recently; there is perfect union. He wrote to me upon the 19th of February (1894):—"Since I recovered from the effects of the accident I have followed my usual vocation, and have never felt the least annoyance from the knee. So far it is as much use to me as if it had never been injured."

CASE II.—A young gentleman of about eighteen years of age, on the 14th of October, 1888, while crossing Lower Baggot-street, was knocked

down by a car and fractured his left patella horizontally by muscular action. There was separation of the fragments to the extent of $1\frac{1}{4}$ inches, and also extensive effusion into the joint. The case came under the care of Dr. C. F. Moore immediately, and as I had to leave town upon the next day but one, for the south of France, he remained under Dr. Moore's care until my return. He considered it necessary to have surgical assistance, and had a consultation upon the 10th of January. Upon my return on the 20th I met Dr. Moore; he told me that the idea was to aspirate the joint on account of the very extensive effusion. The effusion had not subsided, but with the application of ice bags, absolute rest, and other treatment, it was subdued by the 3rd of February, when my apparatus was applied, and the bones were brought easily into apposition. In March a plaster bandage was applied; union having taken place the second bandage was applied on the 18th of April. I kept this patient unusually long in plaster on account of the primary wide separation, and the pronounced muscular strength of his quadriceps muscle. This caused some slight stiffening in the knee, for which he was ordered Turkish baths and massage. I finally flexed the knee under chloroform on two occasions. There is complete osseous union between the bones. If it were not so, the amount of force used to flex his joint would have broken through or stretched any fibrous union. He writes in February, 1894:—"I have never experienced the slightest inconvenience in my knee from change of weather or otherwise. There has never been the slightest separation between the parts. I am quite as well as before the accident, and can walk any distance. The accident happened to the limb over six years ago."

CASE III.—On the 21st of August, 1890, a gentleman about thirty-seven years of age, broke his right knee-cap under the following circumstances:—He was walking on a slope of wet and slippery concrete when the heel of his left boot shot out from him, and on rising to regain his balance, all his weight came on his right leg. He suddenly felt a snap, and immediately sat down, his right leg bent under him, he was unable to rise and had to be lifted. He was brought in a cab to my house, when I found his right knee-cap had a transverse fracture. There was much effusion into his joint which considerably increased that night. Aperients were administered, and ice-bags applied locally, the limb being fixed in my apparatus. About ten days after the accident I was able to draw the fragments together by means of adjusting pads, and eight weeks from the day of the accident I applied a plaster bandage. At the present time he writes that he feels no inconvenience. "I walk from my house to my office and back every day, and can walk very quickly; can go up and down stairs. I have never pain or trouble with my knee." I had an opportunity of examining this gentleman's knee

about four days ago. There was perfect osseous union, but he cannot flex his knee as much as the other, some very little stiffness remaining; he declined to allow me to flex the joint under an anaesthetic.

Of the fourteen cases of which I have notes I treated ten as recent fractures with results similar to the cases I have described, with the exception of two. One was in an unusually developed muscular pedestrian, who did not keep on his bandage long enough, and the osseous union, which, I believe, had taken place, gave way. The fragments are now considerably separated. He has, however, got fairly good use of his limb, and I think some long fibrous bands connect the bones. The second case in which osseous union did not take place, the patient would not submit to treatment long enough, having to leave this country, and only allowed my splint to remain on him three weeks. Therefore, out of ten cases of recent fracture of patella treated by my apparatus, bony union has resulted in all but two. Of the two in which bony union did not take place the result in one was due to the patient's impulsiveness, and in the other to non-compliance with the treatment.

These cases have all been tested and examined from time to time. Except in two there is no trace of separation, the bones moving in one piece, and no inequality can be felt at the site of the fracture. The quadriceps extensor muscles have not got thin or wasted, the circumferential measurement being the same in both limbs. The description written by the patient in Case II. might truthfully be applied to the others.

In four cases of old standing transverse fracture of the patella I opened the joints and wired the bones together. From the length of time that had elapsed before I saw the cases, the considerable separation and very impaired usefulness of the limbs, no other treatment could have been then adopted with advantage. The results in these cases were good. Osseous union followed, and the patients regained full power of their limbs. In one of these cases the quadriceps extensor was so shortened that when I attempted to bring the fragments together, using all the force I possibly could, they were still separated three-fourths of an inch. I therefore adopted the V-shaped incisions which allowed me to bring the fragments together by lengthening the quadriceps extensor muscle. These cases were much slower in recovery, convalescence, and regaining the normal condition than the cases alluded to above.

I have thus recorded my experience in the treatment of fracture of the patella; and from the results I have obtained, I have no reason to alter the method I have pursued for several years.

The dangers of opening a knee-joint, and suturing a recently fractured patella are decried by some. I am aware there are surgeons who advocate the treatment by suturing at once; but, no matter how carefully this operation is performed, it goes without saying that there is risk and peril to the patient. As an example of this—I was called out of town about a year ago to see an officer who had fractured his patella by direct violence, followed by considerable effusion into his joint. I placed the limb in a suitable apparatus, ordered ice to be applied, and other treatment to be adopted until I should see him again in a day or so. But the splint I temporarily designed (not having my own with me) was removed by the surgeon in charge, and from a letter which I received, the patient did not wish to have any other apparatus applied. I was requested to see him again, but declined to do so, as I knew the result would be, at best, a weak fibrous union.

I was subsequently informed that, not having gained power in his limb, he was unable to perform his duties. He had his patella sutured in London soon after, and I heard he had had a drainage tube in his pleural cavity, and was slowly recovering from a pyæmia.

The great majority of the cases of compound fractures of the patella I have seen were caused by direct injury or gun-shot wounds, and necessitated amputation of the limb. Yet, a compound fracture of the patella must not be considered a necessary indication for amputation; for in suitable cases, and when the condition of the surrounding soft parts admit, removal of the fractured patella has been practised.* The patella has also been removed for permanent dislocation. The only cases of compound fracture of the patella I had the opportunity of successfully treating without loss of limb were two. One was caused by a kick from a horse. The patella was broken in the centre, and the synovial fluid flowed out. The patient, who was a young gentleman about twenty-five years of age, made a complete recovery. The second case occurred in a man about fifty years of age, who was admitted, under my care, into the

* Sir George Humphry (Cambridge).

City of Dublin Hospital, suffering from a compound fracture of his right patella, caused by falling upon the edge of the curb-stone, when carrying a heavy basket upon his back. The fracture was transverse, and situated at the inferior third of the bone; the fragments were readily adjusted. The tibio-patellar ligaments being intact, bony union followed, and his recovery was excellent.

The apparatus shown in Fig. 1 is suitable to any limb. Tilting of the fragments cannot occur; for should there be any tendency to do so a strap that can be fastened to the adjusting pads will prevent it. The traction is downwards and backwards. The splint provides for the position of the limb. There is no pressure upon the arterial supply of the patella. There is no risk to the life or limb of the patient (as might be caused by the hooks or by opening the joint and suturing the fragments). It will produce perfect co-apportion without injury to the soft parts. It can make well-maintained traction upon the upper as well as upon the lower fragment if required to do so. No fluid can separate the fragments. The patient cannot interfere with it when adjusted, as with plaster and other methods. It has produced the best result—bony union.

ART. VII.—*Nephorrhaphy and Nephrectomy.** By J. S. M'ARDLE, F.R.C.S.I.; Surgeon and Lecturer on Surgery, St. Vincent's Hospital, Dublin.

THE cases which I shall bring before you cover a field so wide that discussion of them could not be attempted within the limit of this communication. I shall, therefore, narrate brief histories of each, and lay before you some points which I consider worthy of consideration.

NEPHRORRHAPHY.

CASE I.—B. H., aged nineteen years, came under my care on March 10th, 1888. She complained of severe abdominal pains of an intermitting character, and chiefly referred to the left of the umbilicus; pain was also felt up to the angle of left scapula, and down to anterior superior spine of left ilium and into thigh. Rest in the recumbent position relieved these symptoms, as also vomiting, which occurred whenever she

* Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, February 28, 1894.

made any vigorous exertion. At times she suffered much from headaches, chiefly in the parietal regions.

On examining the abdomen I found the right iliac and lumbar regions distended and tympanitic, while on the left side a tumour could be felt, half of which projected below the interspinous line. A little manipulation brought this mass to occupy the proper position of the left kidney. I now learned that after walking about the patient used to suffer from frequency of micturition, only a small quantity being voided, then copious urination would take place. Traces of albumen were found in the urine.

The diagnosis made was that this tumour was a displaced kidney, which became enlarged owing to its abnormal position.

Operation.—Feeling that it might be necessary to drain the kidney, I operated by a lumbar incision, running obliquely midway between the ribs and crest of ilium, and extending well forwards. On reaching the organ it was found almost purple in colour, once and a half the normal size; the capsule was dense, as I found on passing an exploring needle into the renal substance; there was no nodulation, nor were there any points of fluctuation. Looking upon the condition as one of extreme congestion and oedema due to malposition, I relieved engorgement by free incision into the cortex. A strong silk suture was now passed through the aponeurosis in front of the quadratus lumborum, and then through the fibrous capsule of the postero-external aspect of the kidney, thereby fixing that organ in a good position. A drainage tube was now laid in, and the operation completed. For some days after the operation there was distressing sickness and headache, but ten days after this the wound was healed, the oozing of serum and urine which lasted for some days having ceased.

I call attention to this case because a simple procedure has completely and permanently relieved this girl from a very annoying trouble, and it illustrates the value of dealing with these organs on the general principle that relief of tension is the essential in the treatment of congestive and inflammatory conditions.

I do not wish to be taken as advocating cortical incision or nephorrhaphy for every floating kidney, nor do I hold with those who explore this organ every time they come across it enlarged or movable. Visual examination and direct touch are very good at times, but they should not take the place of simpler yet effective methods, and no circumstances can justify exposure of our patients to the dangers attendant on renal exploration, until all other methods have been tried without avail. Apart from the dangers arising from sepsis, and from the lethal phlebitis to which this operation exposes the patient, there are other, less widely recognised, but nevertheless very real, mishaps attendant on these procedures.

One of these was well shown in a specimen demonstrated at the last Congress of German Surgeons by Barth. There was a necrotic centre found in the kidney owing to the occlusion of one of the arterial arches by the anchoring suture. A similar condition has been noted as the result of puncture. One of the large arteries is obstructed, haemorrhagic infarction takes place, and ultimately necrosis. With these evidences of danger before my mind, and the frequent failures to afford relief after the most promising operations, I am far from being an advocate of the indiscriminate tampering with the kidney which is now fashionable.

NEPHRECTOMY.

CASE II.—E. K., aged twenty-two years, was sent to me by Dr. Fitzmaurice, of Tralee, on August 20th, 1892. The chief cause of complaint she had was that her neighbours thought she was pregnant, and being unwed, this idea was repugnant to her. On examining her I found what appeared to be a large ovarian tumour occupying the left iliac and the umbilical regions. It was elastic, painless, and movable. The left lower ribs were drawn towards the middle line, and dulness extended up to them. On examining the pelvic organs I found the uterus prolapsed slightly, but uninfluenced by the movements of the tumour, while on suspending the patient by the knees the tumour slipped upwards with a peculiar click, best heard over the lower ribs on the left side. In this position bimanual examination showed that the broad ligaments and ovaries were free of the tumour, and on pressing forward the tissues of the loin a resisting mass was felt as the tumour had slipped into the left side to occupy the site of its original location. I need not detail the history further. Operation was decided on, but delayed in the hope that the patient's attendant, Dr. Fitzmaurice, might come to town, as he expressed a wish to assist, and I much desired his presence. Some days after, however, the patient became weaker, and I was obliged to operate. Assisted by my colleague, Mr. Tobin, I opened the abdomen in the left linea semilunaris. The incision, owing to the size and solidity of the tumour, was made five inches in length. The peritoneum being opened, I passed my hand into the right loin to find there a kidney somewhat enlarged, but otherwise normal to touch. I now laid open the peritoneal covering of the tumour outside the descending colon, and pushing it with the inner layer of meso-colon inwards, isolated the vessels which I double ligatured and divided. As the tumour projected towards the pelvis I did not attempt ligature and section of the ureter until I had isolated the entire mass. Sponge pressure broke down most of the adhesions, only half a dozen ligatures being necessary for vascular bands at the upper and inner aspect of the growth. At this stage of the procedure an unfortunate

accident happened. While engaged in detaching the tumour behind, I felt a great splutter of jelly-like material against my arm, which overlay the tumour, and Mr. Tobin, who was assisting me, called my attention to the fact that a rent had occurred in the wall of the tumour, through which grumous masses and blood tumbled out in great amount. Fearing that there was still some free blood-supply to the tumour, I rapidly turned out of its interior all the movable matter and blood I could find. I grasped the edges of the rent, pulled them well out of the wound, and encircled them (so as to close the opening) with a gauze bandage. While this was being done Mr. Tobin kept the descending colon supported against the abdominal wall, and thus prevented soiling of the peritoneum. Soon the great mass was entirely removed after ligature and section of the ureter. Satisfying myself that no infection of the peritoneum or loin occurred during the operation, I closed the peritoneal cavity. Then I dropped the ureter, completely closed the skin wound, and made no lumbar drain opening. The operation was necessarily protracted and it was some hours before the patient rallied. Then a time of quiet progress, which promised well for the patient, succeeded; but on the fifth day a rise of temperature with some shivering was noted. This was followed on the sixth by a fall of temperature and a discharge of pus in the urine. At first I feared that the remaining kidney was at fault; but careful observation of the urine after washing out the bladder showed that the discharge of pus was intermitting, and, moreover, that the urine excreted at other times was sp. gr. 1028, and contained neither albumen, blood, nor pus. This satisfied me that, so far as the right kidney was concerned, things were satisfactory. The flat abdomen and absence of vomiting or umbilical uneasiness, showed that the peritoneum was safe. Evacuation of the bowels occurred regularly from the third day. With these data to go on, I made an incision above the crest of the ilium, and passed my finger downwards and inwards towards the point at which the ureter should lie, and gave exit to a considerable quantity of dark foetid pus. On exploring the neighbourhood, I came upon the cause of the distressing complication above noted. A small piece of sponge, which had been placed under the ureter during section, had remained in the wound. On removing it, fully $1\frac{1}{2}$ inches of the ureter came away as a slough. A short strong tube was placed in the wound after flushing with 1 to 2000 corrosive sublimate solution.

For some days the urine contained traces of pus; the dressings were saturated with the same material; but in a short time she returned to Tralee in sound health, in proof of which I now read for you part of a communication relative thereto:—

“SIR,—You will be sorry to hear I am not married yet. The stays fit splendid; but I don't forget the dress you promised me when I get married. I am a credit to you and sweet Tralee.”

You can see by the foregoing that she is very much alive.

My reason for detailing at such length a case of such ordinary character is to warn others against a habit which I contracted before I commenced abdominal surgery, and that is to cut or tear sponges so as to conveniently adapt them to irregularities such as occur in the axilla, groin, &c. In this case when I called for a small sponge to place under the ureter, someone, following the bad example which I had so often given, tore a piece from a large sponge, and this was placed under the ureter before division. As the great cavity from which I removed the tumour was packed with sponges to prevent oozing during the final steps of the operation, I overlooked the small piece in their removal. The sponges counted all right, and it was only when grave symptoms set in that I discovered the piece of sponge as detailed above. Since that time I have conducted or assisted at over 50 laparotomies, and I have repeated time and again—"Never tear or cut a sponge during operation."

There are some points in the operation to which I wish to refer particularly.

(a). *Line of Incision.*—A cursory reference to the literature of this subject shows that there is great diversity of opinion as to the proper route to follow. In a recent American work (Kean and Whyte, 794) a statement is made which is not in accordance with the views of most operators in these countries—it is that, "Lumbar incisions are to be preferred except in neoplasms of large size." While Robert Abbe, another American, says, "The peritoneum will not be opened unless the tumour be large, and then it is better so." Both of these writers, and many others I could mention, seem to overlook the real position of those who advocate the abdominal incision. The greater freedom of action it ensures, the greater readiness with which ligatures can be applied to the renal vessels, are minor points in comparison to the opportunity it affords us of determining the condition of the opposite kidney before removing the affected one. The strongest point urged by Thornton in support of the abdominal operation is disregarded by these writers. To watch the flow through the ureters with a cystoscope, to catheterise them, or to occlude them by any of the appliances recommended for this purpose sounds well, but works badly, and none of these procedures yield anything like the information derived from transperitoneal touch.

In the accompanying photograph are shown the chief lines of

incision, the names appended being those of strong advocates or originators of the different methods shown.

LINES OF INCISION FOR NEPHRECTOMY.



- A* Linea alba.
- B* Linea semilunaris.—THORNTON.
- C* Costo-iliac.
- D* Lumbo-abdominal flap.—KÖNIG.
- E* Sub-costal oblique.—KÜMEL.
- F* Lumbo-abdominal, transverse.—ABBE.

For my part, I shall continue to cut down through the semi-lunar line whenever I contemplate removal of the kidney—1st. Because the depth of the abdominal wall is less here than elsewhere. 2nd. You come directly down on the renal vessels through this incision. 3rd. Examination of the opposite renal region is easily carried out. 4th. The ureter can be readily followed downwards to the bladder in case it is sacculated, or otherwise so affected that removal is necessary.

The statement by Tait, that "the kidney is best reached by the most likely looking road," only proves that he is disposed to generalise once he leaves the utero-ovarian area.

(b). *Ligation of Vessels.*—This operation is still in its infancy, and so other details may fairly be discussed; and one which, in my

estimation, demands full consideration, is the method of dealing with the renal vessels.

It may seem to many that there can be nothing to discuss in reference to this matter, and yet in the most recent communication on this subject I find a surgeon of wide experience describe the steps of a case of nephrectomy in which very copious haemorrhage occurred during the enucleation of the tumour; but the final step of the operation was double ligature of the renal vessels. The patient died of shock some hours after operation. Old age, low vitality, and weak heart may have aided the collapse; but the cause of death was failure to ligate the pedicle before separating the tumour from its bed. Worse than this, there are cases on record where traction has torn through the large veins, causing such haemorrhage that death was almost immediate; and I have before me as I write this the records of a case in which a large tumour was torn away entirely without any ligature having been applied. Clamp forceps prevented immediate death, but 14 hours later the patient succumbed. With these instances fresh in one's mind, the advantages of this early double ligature and section cannot be overlooked. 1st. You avoid all traction on the large and often very weak renal veins. 2nd. Rapid shelling out of the tumour is rendered safe. 3rd. Should haemorrhage occur, it will be from such situations that clip forceps may be safely applied. And 4th. After removal of the tumour, sponge pressure and tamponing with iodoform gauze will effectually check bleeding. I may be told that the kidney must be removed once ligature and section of the pedicle have been carried out; but this is not so, for, if the adhesions are so intimate and vascular that removal seems exceptionally hazardous, acute necrosis is unlikely to occur should the operation be abandoned. Rare, indeed will be the occasions on which the practicability of excision or otherwise cannot be ascertained beforehand.

In my last two cases I applied the ligature before enucleating the kidney, once I satisfied myself that the organ could be removed. I raised the colon and inner layer of meso-colon inwards, and passed the ligature with a large blunt needle, such as is in use for transfixing the broad ligament in cases of ruptured tubal pregnancy.

(c) *Catch Forceps*.—I have long felt the necessity for great care in the use of clip forceps in the neighbourhood of large veins. When the flow of dark blood from the bottom of the pelvis, or the loin,

is appalling, one instinctively grasps a pressure forceps. I hesitate before using it, since it has been my lot to witness the ill effects of such appliances on more than one occasion. I have seen the vessel from which a clip forceps has been removed commence bleeding when reaction sets in, and on examining the piece after double ligature and excision I have found the inner and middle coats retracted, leaving only a fenestrated web over the part which had been vigorously pinched by the forceps. Through this blood had welled up freely.

In another instance I have seen fatal haemorrhage follow the application of a clip to a large vein, while the instances of pelvic phlebitis following crushing of the uterine veins with clamp forceps are not by any means few.

(d) *Closure of the Peritoneum.*—For my part, I would advise this to be carried out always, but I should insist on it—1st, when the tumour is malignant, or contains infectious matter; 2nd, when from any cause lumbar drainage is necessary; 3rd, when the ureter is not drawn into the lower angle of the wound; 4th, when there is any tendency to prolapse of the colon.

Now, it must be borne in mind that suture of the peritoneum need not drag upon the colon if the incision has been properly made in that membrane. Even as I recommend this, I have in my mind the unfortunate but instructive case in which Thornton kinked the large intestine by suturing the rent in the peritoneum, thus bringing about a fatal result. I hold that no such sharp flexure should arise in the suturing.

(e) *Treatment of Ureter.*—The ureter may be left until the tumour is turned out unless it be decidedly friable. Section of the veins allows haemorrhage from the tumour unless they are double ligatured, but section of the ureter might infect the wound, and so it is best left until the tissues round it can be protected by sponges wrung out of corrosive sublimate solution. The material I use for all ligatures of vessels is twisted silk, boiled and immersed in 1-1000 corrosive sublimate solution. It does not slip, it runs easily, and it is thoroughly aseptic.

In the case I have brought before you simple ligature and dropping of the ureter was followed by the formation of pus; the small sponge which was left in was aseptic, and would have become encapsulated but for the presence of micro-organisms in the mouth of the ureter. In my early ovariotomies suppuration took place in the region of the cut end of the Fallopian tube. To prevent

this I have in all recent ones drawn out the mucous lining, snipped it off deep down, and applied corrosive sublimate solution 1-1000 to the stump, with a piece of alembroth gauze. Now I never see any evidence of local infection. This I shall in future do with the ureter. Thornton prefers to bring the ureter into the lower angle of the wound (semilunar line), others make a lumbar opening, through which they draw it out and fix it; while I see by a recent communication that good results have been obtained by cauterising and dropping the ureter (*Richardson, Annals of Surg.*, July. 93-101).

(f) *Partial Removal.*—A communication which I have received from one of the most skilled and elegant operators of our time, and to which I refer in the table of nephrectomies which I now lay before you, has caused me to refer, in passing, to the question of Resection of the Kidney. Abbe (*Annals Surg.*, 66, Nov., 1893), after detailing a case of removal of part of the kidney, says:—"No similar case to this has been reported." I should hope that few attempts of this kind will be made, as there is no means of determining the limit of cancerous invasion. Kümell, after experimenting on animals, operated on the human subject, removing successfully one-third of the renal substance for abscess and calculus, and one-half in a case of echinococcus. A third case in which he operated died ten weeks later from interstitial nephritis, and on examining the kidney little or no trace of the operation was found. In all these cases fixation to the abdominal wall and tamponing with iodoform gauze was necessary. There are now recorded some 13 cases, with 2 deaths—one from haemorrhage in a case of cancer, another from thrombosis of the cava; all the others made a permanent recovery. This operation should save many a kidney; and I have no doubt but that further experience will show that it is a procedure of less gravity than complete removal of the organ.

(g) *Sarcomata in Children.*—Everyone knows that sarcoma in the adult should be removed if causing pain, great pressure symptoms, or, what is rare, copious haemorrhages, but Bland Sutton ("Tumours, Innocent and Malignant," 1893, p. 120), speaking of this affection in children, says: "Nephrectomy for renal sarcoma in children is absolutely unavailing, and is fast falling into disfavour." This is a sweeping statement, and although the only case in which I performed nephrectomy for sarcoma in a child bears out his view, as recurrence took place four months after operation, I am far from agreeing with the view that every case

of renal sarcoma in children is beyond the reach of surgery; and the successful cases reported by Abbe and Malcolm should, in the absence of voluminous statistics of an opposite character, make us hesitate before accepting as gospel a view supported even by 21 successive failures.

Operations for Renal Sarcomata in Children under Six Years of Age.

Reporter	Age	Result of Operation	Reference
Ollier	4½ years	D. - - -	Révue de Chir., 1888, 898
Jessop	2½ years	R. Recurrence and death in 9 mths.	Lancet, 1877. Vol. I., 889
Kocher	2½ years	D. - - -	Deut. Zeitsch. für Chir., Bd. IX., 812
Czerny	11 months	D. - - -	Deut. med. Wochensch, 1881, No. XXXI., 422
Hueter	4 years	D. - - -	Deut. Zeitsch. für Chir. Bd. IX., 527
Croft	2 years	R. Recurrence and death within a yr.	Trans. Path. Soc., Vol. XXXVI., 274
Godlee	1 yr. 10 mths.	R. Recurrence and death in 6 mths.	Trans. Clin. Soc., Vol. XVIII., 81
Meredith	4 years	D. - - -	Brit. Med. Jour., 1884, Vol. II., 863
Owen	10 months	D. - - -	Cat. Mus. St. Mary's Hospit., 1891
Pughe	2 yra. 4 mths.	D. - - -	Trans. Path. Soc., Vol. XXXI.
Alsberg	5 years	R. Recurrence, death in 11 weeks	Deut. med. Wochensch, 1887, 878
Rawdon	1 yr. 9 mths.	D. - - -	Liverpool Med. Chir. Jour., Vol. III., 252
Taylor	1 yr. 8 mths.	D. - - -	Am. Jour. Med. Sci., 1887, 470
Brokaw	3 yrs. 8 mths.	R. Rec., and death 2 months later	Phil. Med. News, 1881, Vol. LVIII., 318
B. Sutton	1 yr. 6 mths.	D. - - -	Unpublished
A. Czerny	3½ years	D. - - -	Arch. für Kinderkrank., Bd. XI., 247
König	6 years	R. Rec., death in 5 months	
König	2 years	R. Rec., in 3½ mths.	Deut. Zeitsch. für Chir., Bd. XXIX., 590
König	1 yr. 8 mths.	D. - - -	
Fischer	4½ years	R. Rec., and death in 4 months	
Walsham	10 months	R. Rec. within 12 months	Brit. Med. Journal, 1893, Vol. I., 694
Abbe	2 years	Perfect health 1½ year after	Annals of Surgery, Jan., 1894
Abbe	14 months	Perfect 1 year after	Ibid
M'Arkle	20 months	Recurrence in 4th month, death within 7 months of operation	Dub. Jour. Med. Science, 1894
Malcolm	28 months	Perfect health after 14 months	Lancet, Feb. 3, 1894
M. Hicquet	4 years	Perfect health 6 months after	Bull. de l'Acad. Royale Belg., 1882, p. 41

Nephrectomies in Ireland.

Operator	Age of Patient	Condition of Kidney, Size, &c.	Method of Operation	When and Where Recorded	RESULT	
					Immediate	Secondary
F. J. O'Reilly (Trim)	26 years	Serofulous, 8½ oz.	Lumbar	Trans. Acid Med. Ireland, Vol. I. 1887	Death from shock	—
K. Franks	29 years	Abscess cavities	Lumbar	Good	—	Good
F. T. Huston	14 years	Serofulous	Lumbar	1887	Good	Good
K. Franks	21 years	Tubercular	Lumbar	1889	Death from co- existing pelvic cellulitis	—
C. Copinger	26 years	Tuberulous	Linea semi- lunaris	Good	Died of phthisis 8 months later	—
K. Franks	24 years	Cystic, weighed over 2 lbs.	Abdominal	1890	Cure	—
W. J. Smyly	20 years	Serofulous, size of fetal head	Lumbar	1891	Good	Good
J. Lentaigne	40 years	Abscess of kidney	—	—	Good	Good
W. J. Smyly	88 years	Hydronephrosis, size of adult head	Abdominal semilunar line	1892	Good	Good
J. M'Arkle	22 years	Cystic tumour, weighed 7 lbs., simulated large ovarian tumour	Abdominal semilunar line	1892	Good	Now in perfect health
J. M'Arkle	20 months	Myo-sarcoma, filled greater part of abdomen	Abdominal semilunar line	1893	Good	Recurrence four months after; death within 7th month of opera- tion
C. Copinger	F. 58 years	Carcinoma, size of ostrich egg	Abdominal	—	Fistula for one month	Good

I am pleased that a debate on this subject will be the first business at the next meeting of the Clinical Society of London, when Mr. Sutton, in opening the discussion, will have an opportunity of explaining more fully the grounds on which he bases so definite and so humiliating a statement.

With the approval of the author of this work I transfer this collection, and to it add such cases as I could find, thus bringing the number up to 26. Even if only one of these cases is completely restored to health, the operation is justifiable, but when we find that 20 per cent. of all cases recovered and remained well after the procedure, I think it unreasonable to condemn an undertaking of which we have as yet very little experience.

These are the points to which I desire to call attention; but before concluding this communication, I wish to call attention to the position of Renal Surgery in Ireland.

The table which I now present includes, I hope, all the cases of nephrectomy carried out in this country, and I take this opportunity of publicly thanking those busy practitioners who, in the rush of work, were kind enough to fill up the cards I took the liberty of sending in search of such information as would, I thought, render more interesting my communication. The number, though small, is very encouraging, as the results show that care was exercised in the selection of cases, and great skill displayed in dealing with them. If the record but tends to prove to such as are not themselves engaged in operative surgery, that the very gravest lesions of the kidney may be successfully dealt with by nephrectomy, my effort will not have been in vain, and it is my hope that those who have so gracefully assisted me in bringing forward this question may reap their reward in having more frequent opportunities for a display of that genius which keeps Irish surgery in the honoured position which it holds.

ART. VIII.—*Andrew Vesalius.* By GEORGE MATHESON CULLEN,
M.D., M.Ch. Univ. Edin.

To the philosophers of this later time biology seems to have made all things clear, and for the explanation of body and soul, of mind and morals, there is but one formula—the survival of the fittest. This is the magic phrase which enables them to read aright the wonders of the heaven above, and of the earth beneath, and of the waters underneath the earth. It is the law which guides the world and everything in the world. So at least we are told, but I fear our teachers have not sought for the application of this principle in books on biography, for there they would find an instance showing that the extension of their law falls short of universality. Indeed, in the pages of that sort of literature almost the reverse holds good, and we might say that, for the most part, it is the least fitted that survive. The good king is dismissed in a few words, while the cruel tyrant is welcomed to many a page. “For the iniquity of [REDACTED] blindly scattereth her poppy, and deals with the [REDACTED] of men without distinction to merit of perpetuity. [REDACTED] can but pity the founder of the Pyramids? Herostratus [REDACTED] burnt the temple of Diana; he is almost lost that [REDACTED] Time hath spared the epitaph of Adrian’s horse, con- [REDACTED] that of himself.” And Sylvius is remembered while [REDACTED] is forgotten.

The undoubted fact that many students pass through their curriculum without getting any, even the slightest, knowledge of who Vesalius was or what he did. Such a state of things can scarcely be improved so long as the history of medicine is so neglected in medical education; but it is still more unfortunate that anyone desirous of learning something about the Flemish anatomist will find but scant information in our encyclopædias and dictionaries of biography. In French and German there are painstaking monographs on Vesalius, but in English there are only a few imperfect sketches. In the following pages I have endeavoured to supply this want and give as full an account of the man as our present records will supply, and I have striven to free it from the inaccuracies and misstatements which have been repeated so often that they have become, in the minds of many, undisputed truths. I have divided my study into two parts. The first is more strictly biographical,

and the second treats of the work of Vesalius and of his influence, and of bibliographical and other matters which could not be introduced into the first part without marring its directness and disturbing the sequence of events.

PART I.

En fouillant dans le corps humain, il decouvert pour ainsi dire un nouveau monde, avant l'age de vingt huit ans.—Senac (1749).

Vesalius was sprung from a branch of the well-known Flemish family of Whiting or Witing.^a His forefathers had originally lived in the town of Wesel in the Duchy of Cleves, and from this fact they were called "von Wesel," which was Latinised into Weselius or Wesalius, and finally took the more classic form of Vesalius.^b The town itself took its name^c from the weasels which were formerly found in large numbers near it—wesel being the Flemish name for that animal—and considering the origin and significance of the family name, it is only what we would expect when we find three weasels figuring in the family coat of arms.^d It would seem that for many generations the genius of the family was strongly bent towards medicine, and we have several recorded who became very famous doctors. Peter Wesalius was a well-known physician of his time, and his son John was so distinguished in his profession that he was appointed physician to Maria of Burgundy, who married the Emperor Maximilian I. Feeling himself unequal to his courtly duties John withdrew to Louvain, where he publicly taught medicine, and spent the remainder of his life in quiet retirement with the Muses. One of his sons, Everard by name, succeeded him as court physician, and gave promise of great things, which his early death at the age of thirty-six left little opportunity of fulfilling. Andrew Vesalius, natural son^e of Everard, became court apothecary to the Emperor Charles V., and married Isabelle Crabbe,^f by whom he became

^a Also called Wytink, Witting, Wittinga, &c.

^b Vesalius first appears in 1537, when Andrew took the degree of Doctor at Padua.

^c Encyclopædia Britannica. Ninth Edition. Article Wesel. Vol. XXIV.

^d Turner (Gaz. Hebdom. de Méd. et de Chir., 1877, No. 28) suggests that three poppy heads formed the coat of arms. There is no evidence for this, for the shield, as seen on the title page of the Anatomy and the Epitome, shows the three weasels, and Vesalius speaks of them as "mœs mustelæ." Op. Omnia. 1725. Vol. II., p. 653.

^e J. Herkenrode. Nobilaire des Pays Bas. 2 Vols., 4to. Gand. 1870. Vol. I., p. 64.

^f Ibid.

father of several children, among whom was the future founder of anatomy.*

It was in the grey dawn of a winter's day, December 31st, 1514 (or, as others suggest, January 1st, 1515), that Andrew was born ^b in the town of Brussels, the capital of Brabant. Of his early years there is no record, but he himself relates how his boyish mind turned instinctively and with delight to the dissection of dogs, cats, moles, &c. It is not, perhaps, very uncommon to find boys with such a taste well developed, but in his case it is specially interesting, as showing that the attraction to this kind of work was innate in him. While still a mere boy he was sent to the University of Louvain, then of considerable reputation, and here began to show that great power of application and those wonderful mental talents for which he was afterwards so remarkable.

In Physics and in Latin and Greek he is said to have been specially proficient, and to have distinguished himself above his fellows. It is usually stated that Joannes Guinterius Andernacus was his teacher in Greek, but this is very improbable,^c as the latter left Louvain for Paris when Andrew was only twelve years old, and under the age, therefore, at which Greek was usually taught to boys.

The family tradition, and, no doubt, his own inclination, turned Andrew to medicine, and, accordingly, he repaired to the famous Medical School of Paris about the year 1533. Some say that the young student spent some time in Montpellier before going to Paris, but of this there is no proof. In the French capital the most celebrated teacher was Jacques Dubois, or, as he is better known, Jacobus Sylvius, a mean, miserly man, who merited little the great reputation he enjoyed, and who in his old age turned his attention to anatomy, as

* In addition to Andrew we know there was a brother, Francis, and a sister.

^b The earliest authority, P. Eber (*Calend. Histor. Witeb.*, 1550), gives the day as January 1st, 1514, and he is followed by Pantaleon (*Diar. Histor.*, 1572) and by Adam (1620). Castellanus (1618) has *Pridie Kal Maii*, 1518, while Sweertius (*Athen. Belgic.*, 1628) and Johannis Imperialis (*Museum Histor.*, 1640) agree upon *Kal Maii*, 1518. The portrait of Vesalius in the Anatomy and the Epitome has the subscription—*An. act. 28, 1542*, which makes birth in 1518 impossible. Roth (*Andreas Vesal.*, Brux., 1892, p. 58) makes the suggestion that the 1st January, 1514, would be counted under the old style, when the year was made to begin and to date from March, and that, therefore, the real date is January 1st, 1515.

^c See article by E. Turner. *Gaz. Hebdom. de Méd. et de Chir.*, 1881. Nos. 27 and 28.

lectures on that subject promised to pay better than those he had up till then given on the languages of Greece and Rome. Under this man Andrew studied, and he seems to have regarded his master with feelings of esteem and veneration, which the disgraceful attacks the latter afterwards made upon him did not altogether destroy. Among those who attracted the young Fleming most, and whose learning most demanded his respect, he himself mentions^a Guinterius, Joannes Vassaeus, Johannes Fernelius, and Oliverius. But, as regards anatomy, Andrew may be said to have been taught nothing,^b and he was not a whit straining of the truth when he declared that he held no man to have been his teacher; for the lecture consisted of nothing more than the reading of Galen by the professor, who sat on high in his rostrum, and who relegated the dissection of the animals used, to a servant, often a surgeon barber. Human bodies were very rarely obtained, and when one was dissected the same rule held good—the ignorant barber did the work, while the teacher looked on^c and directed the incisions, but would not demean himself so far as to use the knife. Can it be wondered at that such instruction failed to free anatomy from the mists of uncertainty in which it had been so long enshrouded? If there was some structure not to be found, or if fine parts were not clearly dissected out, there was no redress at the hands of the professor, who, with unruffled serenity, left the students to their doubts and difficulties. The quick eye of Vesalius detected this terrible mistake, and, stimulated by the recollection of what his fathers had done for medicine, he determined to rescue anatomy from the living death in which it lay entranced. It was no empty boast of his when he said^d that anatomy would not have advanced with such rapidity had he been content with the superficial dissections offered him by the barbers. But he was not satisfied with this state of things. He examined the bodies of the dogs, &c., most carefully, so that he would frequently be able to show his comrades something which

^a In Epist. de Chynse Radice. *Opera Omnia.* Vol. II.

^b *Opera Omnia.* 1725. P. 675.

^c An illustration in Ketham's *Fasciculus Medicinae* (Venice, 1498) shows admirably this method of teaching. See also Puschman's *History of Medical Education* (London, 1891), p. 325.

^d Verum id studium neutiquam successisset, si quum Parisiis medicinae operam darem, huic negocio manus non admovissem. *Ded. ad Cses. De Hum. Corp. Fabrica.*

the teacher could not find, and in a short time he became recognised as a most skilful dissector. As already stated, dissections of human bodies were rare, and Andrew had an opportunity of seeing only two cases during his three years' stay in Paris. Just before leaving he was present at a third case, and it is sufficient proof of his acknowledged excellence as a dissector that he was asked by both teacher and students to undertake^a the demonstration of the body. These examinations were almost entirely limited to the inspection of the viscera, and there was never a demonstration of the human bones, arteries, nerves, or veins, and, with the exception of the muscles of the abdominal wall, that series of organs was also quite neglected.^b But Andrew had not only gained a thorough knowledge of the anatomy of the dog; he had also gone to great pains to learn accurately human osteology. To get bones he was forced to haunt the cemetery of the Innocents, and to fight nightly with the fierce dogs that infested Mons Falconis, where criminals were executed.^c But these were merely fresh stimulants to the ardent student, and he himself records it^d as a wonderful fact that he stood blindfolded to be examined by his fellow-students, and yet failed not to recognise by the touch every bone presented to him. Nor did his genius fail to impress itself upon his teachers. Guinterius mentions him by name several times. In his Anatomy, published in 1536, he speaks of Andrew Wesalius as a young man of great promise, who, in addition to his singular knowledge of medicine, and his deep learning in the Latin and Greek tongues, was also a man most dextrous in the dissecting of bodies.^e In the edition of 1539 Guinterius mentions in the preface that he was greatly indebted to Andrew Wesalius, a wonderfully diligent student of anatomy.^f

Towards the end of 1535 Francis invaded Italy, and probably foreseeing that war with the Emperor Charles V. must soon

^a *Dedicatio ad Cesarem.*

^b *Praster octo enim abdominis musculos turpiter . . . nullum unquam musculum, ut neque etiam os aliquod, multoque minus adhuc nervorum, venarum, and arteriarum seriem, quisquam mihi commonstravit. Dedic. Caesar.*

^c *Dedicat. ad Cesarem. De Hum. Corp. Fabrica.*

^d *De Hum. Corp. Fabrica. 1548. Bk. I, 89. P. 159.*

^e *Joan. Guinterius Andernac. Institutionum Anatomicarum. Paris. 1536. P. 82.*

^f *Instit. Anatom. Paris. 1539. Epist. Nuncup. "In qua re . . . auxiliarios habeo primum, Andream Wesalium, juvenum mehercules in anatomia diligentissimum."*

follow, Andrew returned to Louvain,^a where he remained for about a year. Not long after his arrival he had the good fortune to become possessed of a human articulated skeleton, then the only one in the world. The manner in which he gained this treasure is worth repeating, as it shows not only the character of the man but also gives a good idea of the state of manners at his time.

Vesalius^b was taking a walk with his friend Gemma Frisius, the famous mathematician, when chance led them through one of the gates of the city into the country beyond. It so happened that the place of public execution was at a little distance from the town, by the side of the road along which they were walking, and the attention of the two friends was soon fixed on a gruesome collection of decaying and dismembered bodies. But Andrew noticed particularly one stake, to which had been attached the body of a robber whose flesh had so particularly attracted the birds of prey that they had picked it clean away and left the bleached bones to dangle in the sunshine, held together solely by the joint ligaments. Human bones were not scarce in that warlike age, but few were to be found in the academies of learning, and such a thing as an articulated skeleton was not even dreamt of. But Vesalius saw the opportunity and determined to get this robber's bones. By their united exertions the lower limbs were separated from the body, but the rest of the skeleton was above their reach and firmly chained to the stake. To attempt more then would be injudicious; it would take time and might lead to their discovery, and in any case they could not bring all the bones unseen into the city. They were content, therefore, to hide the bones they already possessed under their cloaks, and walked homewards as discreetly and circumspectly as possible. Towards dusk of the same day Andrew sauntered out of the city and wandered about till midnight, when he thought he would be able to finish his task without interruption. At this hour, accordingly, he repaired to the place of execution, and undeterred by the hideous creaking and clanking of the rusty chains as they swung to and fro in the wind, without a thought of the

^a "Lutetia namque ob belli tumultus Lovanium reversus." De Hum. Corp. Fab., 1543, p. 161.

^b Vesalius tells the story himself. De Humani Corp. Fabrica, 1543. Bk. I., chap. 89, p. 161.

horrors around him, the mangled and decomposing bodies looming huge and ghastly through the darkness, his mind intent upon his task alone, he climbed to the top of the stake, and after considerable exertion managed to free the rest of the skeleton. He then took the bones to a secluded spot, where he buried those he could not conceal about his person. At dawn he entered the city gates, and having deposited his ghastly burden at home, returned for the rest, which lay hidden. Then he set to work and articulated the bones together, and soon was able, with no small pride, to show his astonished friends and students the articulated skeleton "which he had brought from Paris"—a fiction which was needed to allay suspicion.*

It may appear to be a curious anomaly, that while it was lawful for the robber's bones to lie as an eyesore by the public highway, yet it was not allowable to take the same bones and use them in the cause of science. But anomalies will ever exist, and it is the part of the man of genius to point them out and to find means to free the world from their fetters.

The teaching of anatomy had almost died out when Andrew returned to Louvain—indeed 18 years had elapsed without a single dissection having been attempted. But the enthusiasm of that young man soon brought about a great change. He became Demonstrator of Anatomy, and in that capacity publicly dissected a human body. But he had also other work on hands, and wrote a paraphrase^b upon the ninth book of Rhazes, which was published in February, 1537. By this time, however, Andrew had gone to Brussels—indeed the dedication of the book to his friend Nicolaus Florenas, the Emperor's physician, is written from that town. From Brussels he journeyed into Italy, where anatomy was being taught in a much better manner than elsewhere, and where he, no doubt, hoped that he would be able more fully to justify his intense love for that science. He stayed at Venice for some time to learn Medicine, which was taught in a much more practical way than it had been in Paris. The hospital where the students studied was kept by the Theatine monks, and Vesalius would thus be brought in contact with

* Some say that Vesalius was exiled from Louvain when the true story became known. Of this there is no evidence. Vesalius declares (p. 161, Ed. 1543), that the burgomaster was much interested in anatomy, and did his best to supply bodies.

^b Paraphrasis in nonum librum Rhazae Medicis Arabis clariss. ad Regem Almansorem authore Andrea Vesalio, Bruxellensi, medicinæ candidato. Lovaniæ ex officina R. Resoti, mense Februar, 1537, 8vo, pp. 224.

John Peter Caraffa, the head of the order (afterwards Pope Paul IV.), and with St. Ignatius Loyola who was staying with him. Here, too, he first saw the Chyna root^a used, and here he met his fellow-countryman John Stephen von Calcar, who was studying painting under Titian. Towards the end of 1537 Andrew went to Padua, where he was admitted to the degree of Doctor^b on December 8th. But his fame as a dissector had gone before him, or had been already displayed by him in that city, for we find him^c beginning the demonstration of a dead body on December 6th. When he was definitely appointed Professor of Anatomy and Surgery is not known, but in the archives of the Venetian Senate we read, under date 11th Oct., 1539, that "it was agreed to augment the salary of Andrew Vesalius, who had been Professor in Padua for some years past."^d

And thus, at the early age of 23 years, Vesalius was appointed teacher in one of the most distinguished universities of Europe. He had already demonstrated in Paris and in Louvain, and was well known as an able dissector and a skilful lecturer. But it is necessary to have a clear idea of his attainments at that time, in view of the enormous development which his genius showed during his six years' residence in Italy. His knowledge, after all, was very limited; he was, indeed, a skilful dissector, he was fairly conversant with the anatomy of dogs and smaller mammals, and he had carefully mastered what Galen had to say on the subject, but as yet he had probably not dissected more than half a dozen human cadavera, and none of these in anything like a scientific way. In a word, he was a brilliant product of the old school, but as yet there were no signs of his revolt against the authority of his teachers. That his thoughts had not yet shown him the new path which must be trod, is evident from the revised edition of Guinterius's Anatomy,^e which he published in 1538, and from his careful study of the text of Galen, the fruits of which are seen in the edition^f of that author published

^a Epist. de Chynæ Radice. Op. omnia, Vol. II.

^b Roth's Andreas Vesalius, Bruxellensis, Berlin, 1892, p. 425.

^c Roth, op. cit., p. 456, gives original document.

^d Roth, op. cit., p. 428, gives original document.

^e Institutionum Anatomicarum per Joannem Guinterium Andernacum ab Andrea Vesalio, Bruxellensi. Venitiis in off. D. Bernardini. 1538.

^f Galeni omnia opera nunc primum in unum corpus redacta. Apud heredes Luce Antonii Juncte Florentini, Venitiis fol. 1541.

by the Venetian printer's-Junta, in 1541. But he had now a recognised University status, and with additional bodies for dissection, and with increased pains and study bestowed on the work, he gradually began to doubt the soundness of his old faith, and the more accurate his dissections became, the more difficulty he found in fitting them to Galen's description of them.

Moreover, it must be remembered that Vesalius was not only Professor of Anatomy but of Surgery as well, and that with two subjects on hand he would pay considerable attention at first to the one in which he was less well versed. But his devotion to surgery was a distinct gain to anatomy, for it first suggested to him the idea of making engravings of dissections. He had been lecturing on the subject of Inflammation,^a and in order to make the much-disputed text of Hippocrates somewhat clearer, he drew a sketch of the veins of the body. This drawing delighted his students and colleagues, and they begged of him to make others. And as it was difficult to copy these illustrations he determined to print them along with three designs which Joannes von Calcar had made of a skeleton he (Vesalius) had articulated for the use of his students. These woodcuts appeared in April, 1538.^b In his preface to them he rather apologises for printing them, but he argued: "Although it would be hard—in fact, altogether impossible—to learn anatomy in this manner, no one will deny that it greatly aids the memory in retaining details." The success of this enterprise was great, and led Vesalius to embrace the idea of displaying the whole body by means of such plates.

It is so customary to think of Vesalius as a great anatomist, and in so special a manner is that study associated with his life in Italy, that one is tempted to forget that he did other things. His leisure was to a considerable extent spent in learning Hebrew and improving his knowledge of Arabic, under the guidance of

^a *Quum Patavii ad medicinæ chirurgiae lectionem delectus, inflammationis curationis pertractarem, divi Hippocratis & Galeni de revulsione ac derivatione sententiam explicaturus, venas obiter in charta delineavi, ita ratus quid, per ea' l'v' Hippocrates intelline facile posse demonstrari. Tabulae sex Vesalii. Epist. Nuncup.*

^b *Andree Vesalii Tabulae Anatomicæ sex, Venitiis. On last page—Imprimebat Venitiis B. Vitalia sumptibus Joannis Stephani Calcarenii. Prostant vero ex officina D. Bernardini, A. 1538. (London: Privately printed for Sir W. Sterling Maxwell, 1874.)*

his friend Lazarus Hebræus de Frigeis. His time as Professor was largely occupied with surgical and medical instruction and practice. At that time it was not necessary that the Professor of Surgery should himself be able to do any operation, but Andrew seems to have acquired a very accurate knowledge of this branch of his profession, as his subsequent success as Imperial Surgeon clearly shows; and, moreover, he appears to have performed such simple operations^a as blood-letting. Indeed, he was keenly interested in a great controversy which had arisen on the subject of bleeding as applied to the relief of Pleurisy. In such conditions Hippocrates had urged local bleeding, but the Arabs departed more and more from the practice, till it had become the routine observance to bleed from the foot. In 1522, however, Pierre Brissot, a Parisian physician, went back to the primitive method, and published an apology for it.^b Thereupon arose a very great discussion, to which Vesalius contributed his first piece of independent research. He had examined the relations of the vena azygos to the pleuræ, and came to the conclusion that the easiest way of relieving the congestion in that vessel was by bleeding from the right arm at the bend of the elbow.^c He was greatly interested also in the therapeutical aspect of Medicine, and set about collecting materials for a work on drugs and formulæ. His improved knowledge of Arabic was used in translating the whole ten books of Rhazes, and he is himself responsible for the statement^d that this complete Paraphrase was of much greater merit than the one he had already published on the ninth book alone.

All these things notwithstanding—and his activity in these directions was neither slight nor unimportant—it must yet be confessed that in an ever-increasing degree he gave himself up to his extraordinary predilection for anatomy. At first, as I have already pointed out, his guiding star was Galen. He had intended to issue an edition of Galen's works, with notes of his own observations—and indeed such a note-book he kept by him during his whole career as Professor. But he had hardly demonstrated the human bones three times,^e according to the

^a “Duas sectiones in ramis axillaris vene sub cubite media regione aperimus.” De Hum. Corp. Fabrica. P. 293.

^b Sprengel's Histoire de la Médecine, Vol. III., p. 141. 8vo. Paris. 1815.

^c Opera Omnia (1725), Vol. II., p. 680.

^d Ibid.

^e Opera Omnia, Vol. II., p. 681.

manner of the philosopher of Pergamos, when to him came a glimmering of a new and wondrous light by which he began to read anatomy, not in the mystery-laden words of the huge musty folios of the ancients, but in the clear legible character written in the open book of man's body. A new and wonderful light indeed, the light of Truth! But to the poor men who had for long years been groping on with the miserable candle Galen lent them, trembling in their hands, to them the glare was too much, and many lost even the little mental vision they ever possessed.

To some extent, then, we must commiserate those who saw nothing in the fire this new Prometheus had brought down from heaven, and we must bear with them if their feelings found logical expression in denouncing the man who had introduced what they considered a pernicious novelty.

But with Vesalius the light was not shed in vain. Galen, he saw, had not written his descriptions from the human body, and thus there was before Vesalius a most wonderful world to explore. The ordinary slow succession of bodies—a few in a year—provided by the town authorities was not enough to keep his tireless hand at work. Bodies must be procured at any cost, and, like all really great men, Andrew had a commanding influence over his students and those with whom he came in contact, and so he had ever at his hand a band of enthusiastic and devoted followers. Nor did he stint to use this power to the fullest. Influence was brought to bear on the town authorities, so that more bodies were provided, and the quiet of midnight was disturbed and the sanctity of the church-yard broken in upon by Vesalius and his friends in search of "subjects." At first these resurrection raids were made in the town, but suspicion and the vigilant eye of the night watcher made it necessary to go further and further away, till at last bodies were smuggled in from long distances. It was a fearful and most harassing life, for, in the then condition of society, to be found out would be equivalent to death. We can imagine the anxiety with which a body was carried into the city bundled up in some unassuming vegetable basket or hay cart. How all concerned must have trembled with fear even after the burden had been deposited at the house of Vesalius, or smuggled into his wooden amphitheatre.* No one could breathe freely

* A permanent stone building did not exist for many years after this.

till the skin had been completely removed and an unrecognisable corpse^a lay on the table. But all these unspeakable troubles and dangers were cheerfully undertaken by Vesalius, and they brought their own reward, for the result was that often several bodies were dissected during one course of demonstrations; and such a plethora was there sometimes that the magistrates were asked to put off the impending execution of some criminal to a more favourable time.^b In this manner Vesalius gained a knowledge of human anatomy altogether unique, and he was able dogmatically to assert that Galen was wrong. He even went further and tried to find out if that physician had any foundation for his statements, and he discovered that he had, that, as applied to monkeys, his descriptions were fairly accurate. The evident conclusion was that Galen, considering monkeys similar in structure to man, dissected them and described them as if they were human beings.

But this extraordinary scene at Padua had drawn the eyes of scientific Europe towards that town, and students, both old and young, flocked thither from all parts. And they departed full of wonder. This course was no mere reading of the books of Galen; it was a practical demonstration of the human body lasting some four weeks or so, and going systematically through the series of bones, nerves, arteries, veins, organs, &c. Nothing like it had ever been seen before, and ever and anon would the lecturer turn aside to show where the old leader had gone astray and given erroneous descriptions. The trumpet of fame rang the praises of the young anatomist through the known world. But there were those who, as I have already said, could not see the light; and in addition to this, which might merely be their misfortune, was joined the selfish desire not to see it, for many of these had gained celebrity as professors of anatomy under the old system, and to prove that system wrong was to deprive them at the same time of their salary and of their fame. No wonder, then, that an outcry arose against Vesalius, and that he became exposed to continual assaults. Eustachius in Rome, Dryunder of Marpurgi, and Sylvius of Paris, giants in themselves, were the leaders in the attack upon the innovator. Sylvius wrote him^c that he could no longer consider him his

^a Vesalius mentions this method of defeating recognition. In *Op. Omnia*, p. 463.

^b *Opera Omnia* (1725). Vol. II., p. 680.

^c *Vesalii, Opera Omnia*. Vol. II., p. 680.

friend if he persisted in declaring Galen in error, but he said he was preparing a new anatomy and would be glad to include in it the discoveries Vesalius had made. Indeed, had Vesalius merely written the results of his own observations without making any reference to Galen, he would have saved himself infinite annoyance and discomfort; but his genius could not be confined within such limits. He had not only to demonstrate the truth, but he was constrained to the far more difficult and painful task of denouncing error. And so he went on bravely with his work, gathering together what was to be the first scientific exposition of the human form. He had already been impressed with the value of woodcuts in this connection, and he determined to spare no expense so that everyone who bought his book would have clear proof of the truth of the statements contained in it. In 1539 he lost the help of John Stephen von Calcar,^a who went to reside at Naples, and how the designs of the plates were effected is not certainly known, but probably Calcar had finished a considerable number before he left, and as Vesalius had himself already designed three plates,^b it is quite possible that he may have done some more for his proposed book on anatomy.

(To be continued.)

ART. IX.—*Recent Developments in State Medicine.* By D. EDGAR FLINN, D.P.H., F.R.C.S.I., M.R.C.P.I.; President State Medicine Section Royal Academy of Medicine; Examiner in State Medicine, Royal Colleges of Physicians and Surgeons' Conjoint Board; Fellow and Member of Council, British Institute of Public Health, &c.

At the meeting of the Sanitary Congress, held at Dublin in 1884, now just ten years ago, I communicated a paper on the administration of the Public Health Act in Ireland, which elicited a discussion not without interest, in which Sir Robert Rawlinson, C.B. (the President); the much-regretted Dr. Alfred Carpenter, of Croydon; Professor De Chaumont, F.R.S., of Netley; Sir Charles Cameron, and others, took part. Since that time considerable developments have taken place, and the administering of the Public Health Acts has undergone an improvement for

^a Vesalii, Epistola de Vena Secunda. Basileæ. 12mo. 1539.

^b Vesalii, Tabulae Sex. 1538. Epist Nuncup.

the better. The Legislature has aided in this direction, and the passing into law of such useful measures as the Housing of the Working Classes Act, the Infectious Diseases Notification Act, the Open Spaces Act, the Contagious Diseases Act, the Factory and Workshops Act, the Margarine Act, have all had a useful and far-reaching influence. The improvement consequent on this legislation, though slow in making itself felt, will eventually have a good effect; and though our Irish public bodies yet lack energy in moving forwards on the questions immediately affecting the health of the people, there is, however, a visible improvement on the conditions which existed some years ago, and there is some inclination shown to carry out the State enactments relating to health. The cry of not burdening the overtaxed ratepayer is, however, yet heard; but the creation of an intelligent public opinion grows more and more every year, and the nationalisation of the questions of health economy now runs side by side with the nationalisation of education. It is probable that when the advantages accruing from sanitary science, taken in the broadest acceptation of the term, become better known, the prospects of Irish public health administration will become much brighter.

Quite recently it has been suggested that the time has now arrived when a Minister of Health should be appointed by the State. Sir Benjamin Ward Richardson some years ago strongly advocated the appointment of such a Minister. It is doubtful, however, whether the country is even yet ripe for such a departure; but the day is not far distant when this question will seriously engage the attention of the Government of the day.

It has with truth been said that panic is the parent of sanitation, and if we look back to the history of public health legislation for the past half century or more, we must recognise the force of the remark. As far back as the commencement of the eighteenth century, Dr. Mead, a distinguished physician of that day, and endowed with ideas much in advance of his time, strongly advocated the formation of a central Board of Health, and it was just a century later that any practical measures were taken towards the consummation of that object.

In 1842 Sir Edwin Chadwick issued his Report on the "Sanitary condition of the Labouring Population of Great Britain." The effect of this Report was very marked, and it, no doubt, initiated the era of collective action as regards legislation

directed to the preservation of the national health. A Royal Commission followed the appearance of this Report, and this was the first direct step in the advancement of Sanitary Legislation. It undoubtedly appears to have been the first move of the Government of that day to recognise the public health as a State interest. A year or two later the first appointments of medical officers of health were made in England—viz., in London and Liverpool—under the influence of the terror of an outbreak of cholera in 1848. A Board of Health was established, and it was during the prevalence of this epidemic that those searching inquiries were instituted by the Government, which led to the discovery that the spread of the disease was due to the pollution of water by the intestinal discharges of patients. That discovery, alarming as it was at the time, had most beneficial and fruitful results. It demonstrated the importance of the purity of water-supply; it, moreover, proved the necessity for proper systems of drainage, and helped very materially to lay the groundwork for the many subsequent sanitary reforms which have since been inaugurated; it further paved the way for the elaboration of a system of vital statistics which have been so invaluable to the country.

In 1866 there was again a revival of a cholera scare, which gave an impetus to fresh sanitary legislation, and in 1872 provision was made throughout Great Britain for a complete system of sanitary organisation, and the universal appointment of medical officers of health. Following upon this came the enactment of the Public Health Act of 1875, and the Irish Public Health Act of 1878. The occurrence of a number of cases of cholera in England in 1893 was again the cause of increased sanitary activity, and to this activity may be attributed the comparatively brief sojourn of the disease, which at one time threatened to assume a widely epidemic form. The sanitary defences of the country were so thoroughly and rapidly organised that the complete stamping out of this dreaded malady was accomplished in a short time, and it will be admitted that this rapid "stamping out" was a distinct triumph for State Medicine, and proves what efficient public health administration can achieve, and, moreover, marks with emphasis the advances that have been made since the former cholera outbreak of 1866, and in this connection I may mention that the International Sanitary Conference, which met at Dresden last autumn and has now

resumed its sittings at Paris, is also a distinct landmark of importance in the history of State Medicine, being the first time for many years that concerted action of this nature has been undertaken by the British and Continental sanitary authorities.

The Bill before Parliament now, which is known as the Parish Councils Bill, will not very much affect sanitary questions, though indirectly it will have an effect on the duties appertaining to Boards of Guardians, whose duties will, if the Bill becomes law, be confined to Poor-law administration solely.

The Infectious Diseases Notification Act of 1889, also marks an important stage in public health development in our time, as the exact localisation of disease, especially of an infectious character, is the very essence of, and is a direct aid to, effective sanitary administration ; the very fact of the notification of an infectious disease in a crowded population must have far-reaching and beneficial results. To ensure these results in their entirety, compulsory powers are necessary, and had the Act in the first instance carried with it compulsory clauses, the interests of local public health administration would have been much better served. By this Act, wherever adopted, we are enabled to isolate infectious cases, limit an outbreak of disease, define clearly the areas where illness exists, and thus trace the unsanitary condition and causes by which they are spread amongst a community—all of them vitally important issues, and yet there are some who use every endeavour to discredit and thwart the operation of a measure that in this country is so distinctly indicated. It has been calculated that nearly a quarter of a million of people die annually in Great Britain and Ireland from preventable diseases, and it stands to reason that, if we had the system of compulsory notification and registration of disease strictly administered, the number would be very much diminished. A large percentage of the mortality occurs amongst the labouring classes, whose lives are spent in the midst of the most unsanitary conditions. It is in the surroundings of this class of the population that epidemics of infectious disease have their origin, and no system of notification and disease registration should be considered stringent that would assist in stamping out diseases that cost the State annually so many valuable lives. The *laissez faire* system has had a trial, and the successful administration of this Act will never be attained until compulsory notification becomes the law of the land; in the ensuing session

of Parliament, notice has been given by Mr. A. Thomas, M.P., tending towards the consummation of this object.

In connection with the notification and registration of disease, it is evident that the medical officer of health will, in the future, play a much more important part than hitherto, and we are within a measurable distance of the time when valuable facts and figures will be forthcoming to prove the necessity for a rigorous administration of the Act.

In those countries in which the notification of infectious diseases has been carried out more thoroughly than in England, the results are, as might be expected satisfactory. Thus, at the London meeting of the International Congress of Hygiene, Dr. Hewitt, of Minnesota, remarked that in his own State a Notification Act had been passed at the request of the people, and had been in force for eight years. Before this Act was passed, out of a population of 600,000, there were 1,200 deaths from diphtheria per annum; now the population had more than doubled, while the annual deaths from diphtheria had fallen to 761. Anent this, Dr. Thorne Thorne, in a recent address at the Sanitary Institute, drew attention to the fact that diphtheria had lately considerably increased in Great Britain. In Montreal, again, stringent notification regulations are in force, with the result that "epidemic diseases are becoming rapidly stamped out." The Congress, hearing the objections to the notification system, almost unanimously passed a resolution that "Notification of infectious diseases in all countries should be compulsory."

One of the best systems at present existing for the notification of disease is that which has been established at Zurich as the result of experiments which have been carried on for many years. A Board of Health for the town is established in the office of the police, whose duty is to attend to the sanitation of the town, its water supply, and all questions affecting the health of the inhabitants. To this office all communications concerning health and sanitation must be sent; and prompt action when necessary is immediately taken by the health inspector. Every case of sickness to which a medical man is summoned must be reported by him direct to the Health Bureau on his first visit; if of infectious type, whether mild or virulent, no choice is permitted, his report is compulsory. All medical men are officially supplied with a book of printed forms. Where summoned, the medical man only is required to report; dual

notice to the officials, as in the English Act, is not required. Should a case of infectious disease occur in which the doctor fails to report, he is liable to a penalty of from 10 francs to 100 francs, unless satisfactory evidence is given that the omission was unintentional; on a second omission the penalty may be increased to 200 francs. In every return of puerperal fever the doctor must give the name and address of the nurse in attendance, so that she may be brought under the more immediate regulations provided in such cases. By this means slow or rapid dissemination is immediately traceable. From these reports the central Board of Health issues weekly a most important table, giving the number of new cases occurring in the previous week. A copy of this table is sent to the doctors and members of councils.

The Housing of the Working Classes Act of 1890 has not been availed of as largely as might have been expected; to an extent this might have been anticipated, as far as Ireland was concerned, for our local bodies are not so easily moved to take action in questions that they consider may involve a large outlay. They take, as it were, a long time to develop new ideas, and much prefer to allow matters to remain as they are, or rather as they found them. Boards of Guardians are keenly jealous of their local reputation in this regard, and appear to consider it to be their first duty to economise the expenditure of public moneys, even at the expense of the health of their constituents. Urban sanitary authorities err in the same direction, and are fearful of embarking on any scheme of sanitary reform that may involve them in a conflict with the ratepayers; thus, the Housing of the Working Classes Act remains to an extent inoperative, with the result that the percentage of towns that have availed of its provisions are comparatively small. It seems, however, probable that in the near future, when the benefits of the Act become better known, it will be more generally adopted.

The position taken up by Boards of Guardians as sanitary authorities has been very accurately described by Sir Francis MacCabe, who has had a wide and varied experience as to the manner in which these bodies discharge their public duties. At the Congress held in Dublin, under the auspices of the Sanitary Institute, in 1884, after referring to these bodies as administrators of the Public Health Acts, and after bearing testimony to the readiness that they had evinced to make due

provision for the protection of the public health according to their lights, Sir Francis said:—"There can be no doubt that very imperfect knowledge is possessed by Boards of Guardians on the subject of the economy of Sanitation as a security against disease, suffering, and death. They have never had any precise information placed within their reach respecting the amount of preventable disease, suffering, and death, with consequent loss of wage-earning or productive power, which may be avoided by the provision of suitable drainage and pure water. They have regarded only the direct cost, without taking into account the indirect gain, which I believe would fairly more than counterbalance the much-dreaded taxation."^a

The condition here described has, to an extent, undergone some improvement, but even yet the sanitary authorities throughout the country take a considerable time to move in any measure of health reform. For instance, the question most vital to all, of a pure water supply, is approached in a lukewarm manner, and in some instances it has taken years to convince some of the largest corporations of the necessity of procuring water from a pure source. At the present time the vast majority of towns in Ireland depend for their water supply upon wells, mostly of a shallow nature, and liable to soil pollution, and although the danger is pointed out that these sources are easily contaminated and dangerous to health, the sanitary authorities evince no keen desire to improve matters. They may be advised, and, mayhap, appear convinced, that one of the very first essentials for the healthy life of any community is an abundant supply of pure water, yet, when it comes to the question of the outlay, they are loth to proceed further, and they postpone its consideration for an indefinite term. The wholesome dread of an outbreak of infectious disease is a potent educator, and it is remarkable how intensely active our urban and rural sanitary authorities become when they realise the possibilities of their being overtaken by some epidemic of infectious disease. A chronic condition of scare would do much to urge on promptly those health reforms so much required in the country.

The State inspection of industries is a branch in which improvements have been much needed, though the inspection of the conditions of health in occupation is still in a rudimentary form amongst us, as evidenced by the fact that there are yet a

^a On the Water Supply and Drainage of Small Towns in Ireland.

large number of occupations absolutely free from inspection. Women's work, until very recently, was never considered as necessary to be included in the duties of an inspector, and it was only last year that women inspectors were appointed, in two instances, to aid in the administration of the Factory and Workshops Act. There is annually a large sacrifice of human life through accidents, unwholesome trades and occupations, which might to an extent be avoided. In England, of 527,000 persons employed in coal mining, 100,000 are disabled for a longer or shorter period every year, and there are about 1,000 killed. Now, taking this one branch of industry alone, does it not seem probable that a closer system of inspection is necessary, and a more complete and thorough supervision indicated. It has been over and over again pointed out that the number of industrial inspectors is so absolutely inadequate, that they take years to get through a cycle of their duties, the consequence being that certain occupations and trades go absolutely free without inspection for very long periods.

The establishment of County Councils in England has indirectly been an impetus to the advance of State Medicine, and the position of the medical officer of health has improved vastly in consequence. Up to recently there was a large number of towns who had medical officers of health with small salaries, and who were allowed to practise their profession in addition; now an entirely new order of specialists is being appointed, and counties, and portions of counties, are now placed solely under the charge of one official, who is responsible to the County Council for the due administration of the Public Health Acts; he is debarred from practice, and devotes his whole time to the supervision of sanitary affairs. Thus the position of the medical officer of health in the sister country is now very much better than it was some few years since, when he had both public and private interests to consider. The State is now served by an officer specially educated, adequately remunerated, and untrammeled in the discharge of his public duties, and the entire machinery of sanitary administration is improved in consequence. It is possible that in the future a similar reorganisation may obtain in Ireland, and that combination of districts for health purposes may be established; the present administration of the duties of medical officers of health is admittedly weak, and the State, sooner or later, will be necessitated to provide a remedy.

The difficulties in the way of the medical officer of health in Ireland are many; his duties and his interests very frequently lie in direct antagonism to each other, the consequence is that, per misadventure, he is guilty of the offence of indifference, and mayhap negligence, with the result that the State loses directly by the maladministration of its own enactments. To cite an example—the Housing of the Working Classes Act of 1890, an Act passed to amend the Acts relating to Artisans' and Labourers' Dwellings and to the Housing of the Poor, is an enactment in every way calculated to benefit the community at large. Anything that would aid in the abolition of the wretched hovels that abound in such large numbers in our Irish towns, one would imagine, should be largely availed of. But what is the fact? From an unique aggregation of circumstances, hardly any advantage has as yet been taken of this Act, or was formerly taken of the previous enactments that it repealed. One of the initial steps in securing to a town the benefits of this Act must be taken by the medical officer of health. Under Part I., dealing with "unhealthy areas," section 5 ordains:—

(1) An official representation for the purposes of this part of this Act shall mean a representation made to the local authority by the medical officer of health of that authority.

(2) A medical officer of health shall make such representation whenever he sees cause to make the same; and if two or more justices of the peace acting within the district for which he acts as medical officer of health, or twelve or more persons liable to be rated to the local rate, complain to him of the unhealthiness of any area within such district, it shall be the duty of the medical officer of health forthwith to inspect such area, and to make an official representation stating the facts of the case, and whether in his opinion the said area or any part thereof is an unhealthy area or is not an unhealthy area.

Now, it nearly always happens that a considerable percentage of the "unhealthy areas" in our Irish towns are owned by that class of the ratepayers who contrive to get themselves elected to representative positions; their local influence is thrown into the scale against any improvements being carried out, and the medical officer of health is either unwilling or hesitates to take action. The consequence is that the beneficent operations of this and other kindred Acts remain in abeyance, and tacit obstruction and delay are the inevitable result.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Clinical Gynaecology : being a Handbook of Diseases peculiar to Women. By THOMAS MORE MADDEN, M.D., F.R.C.S. Ed. London : Baillière, Tindall & Cox. 1893. 8vo. Pp. 562.

THIS is a well-sized volume—published at a moderate price by Messrs. Baillière, Tindall, & Cox—containing 259 illustrations. It consists of 47 lectures delivered by the author to the students of the Mater Misericordiae Hospital, and as such is worthy of much praise. Viewed, however, as a full clinical guide to gynaecology it is, to say the least of it, incomplete.

Dr. Madden's great individuality is also stamped on the pages of the work, and thus we find him frequently holding views on pathology, diagnosis, and treatment which differ essentially from those held by far the greater number of modern gynaecologists.

The author at the outstart asserts that he prefers to examine his patients when lying in the left semi-prone position, and believes it to be a more convenient and modest method. He also adheres to this position when performing many of his operations. This plan has now been abandoned in all the leading schools of Europe and America, and we believe rightly so. Undoubtedly, an accurate diagnosis is with greater difficulty arrived at when the patient occupies this position than when she is placed in the dorsal position.

Many of the plates show instruments devised by the author or Mr. A. Duke. Few of these will be found necessary in practice; while many of them do not fulfil the requirements of aseptic surgery, and are therefore to be condemned.

We cannot but think the author will do more harm than good in recommending to young and inexperienced doctors the dilatation of the urethra in the treatment of cystitis. There is no doubt that within the past eighteen months this plan has fallen into great disfavour on account of its liability to leave obstinate, and sometimes intractable, incontinence behind it. On the other hand, an alternative plan also recommended in the book—namely, Emmet's colpo-cystotomy—is, we think, a safe, efficient, and

simple operation, and should without hesitation be performed in all obstinate cases of cystitis.

In the chapter dealing with anteflexions and versions of the uterus we are afforded an opportunity of seeing how antagonistic the views of Dr. Madden are to those most generally accepted now-a-days. Having prefaced his remarks by the statement that the normal position of the uterus is that of slight anteflexion, we are shown in Fig. 129 a misleading diagram of the pelvic viscera, representing the uterus pushed out of its position by a distended bladder; yet this is what Dr. Madden considers the normal position of the organ—slight anteflexion.

The following are given, amongst others, as causes of this abnormality—undue mobility of the organ, impairment of the tonicity of the anterior abdominal walls consequent on pregnancy, tumours growing on the anterior wall, direct violence, such as a fall. We differ from the author in considering any of these as causes, and believe a pathological anteflexion is alone present when the uterus is fixed in that position either by adhesions or a shortened sacro-uterine ligament. The importance of this distinction will be apparent when treatment comes to be considered.

What Schultze has taught us to consider as a normal condition of parts would be condemned as abnormal by Dr. Madden, and treated accordingly. Thus a patient with a mobile and anteflexed uterus must lie, according to the author, persistently in the dorsal position if this condition is to be cured. This position, we may remark, actually increases the anteflexion, as can be easily demonstrated by conducting a bimanual examination with the patient first lying on her side and then on her back.

As further treatment the bladder is to be distended with water. This, of course, will raise a normal uterus into an abnormal position, which position will be maintained so long as the bladder is full and no longer, but we are sceptical of its usefulness where adhesions hold the uterus down.

Neither can we approve the sound being employed for the purpose of raising the uterus, and believe its employment would not only fail in breaking down adhesions, but would also be fraught with the greatest danger.

In the chapter dealing with retro-flexions we find the objectionable plan recommended of placing the patient in the knee-chest position and then replacing the organ by passing one finger into the rectum and another in the vagina. Rectal water-bags and a

worthless repositor are shown in the cuts, and are also, we think unfortunately, advised to be used.

This work, like most other first editions, has, in our opinion, defects; yet still it can bear fair comparison with many other well-known works published at a larger price. Many of the minor operations are excellently described and illustrated by cleverly executed plates. It is no mere compilation, but is the outcome of the experience of a celebrated gynaecologist whose views demanded the closest attention from those differing from him. Dr. More Madden is not afraid to find himself in antagonism to others, but has fearlessly given his opinions regardless of whether they are or are not those most generally held. The book is pleasant reading and will not fail to instruct.

An Introduction to Midwifery. By ARCH. DONALD, M.D.,
M.R.C.P. London, &c. London : Charles Griffin & Co.,
Limited.

THIS is a work suitable for midwives, and is the best of its kind we have seen. We do not, however, agree with the author in thinking that students require such books when commencing practice.

Dr. Donald, in our opinion, has made a mistake in not dealing in a fuller manner with the practical complications of midwifery, and the addition of some 20 or 30 pages would have enormously improved the work.

The book, containing as it does a great deal of useful information, would nevertheless quite fail to enable a student to pass even the simplest class examination; nor would he by reading it be able to take an intelligent interest when observing practical manipulations being carried out.

To demonstrate the truth of the above statement we need only give one quotation from the book—on the treatment of *post-partum* haemorrhage :—

“ In all cases in which there is a well-marked discharge of blood in the latter months of pregnancy, the student must at once hand over the case to a qualified medical man. The patient must be put to bed, and not allowed to get up for any purpose whatever. Any movement may dislodge a clot and start fresh bleeding. The room must be kept cool, quiet, and well ventilated.

“ When haemorrhage comes on in the early stage of labour the student may examine to ascertain if the placenta is presenting. If the placenta

is felt, or, in any case, if the bleeding is profuse, a messenger must at once be sent for the doctor. On account of the special liability to septic infection in these cases, more than ordinary attention must be paid to antiseptic precautions."

Could anything, we ask, be more calculated to irritate an intelligent student, or even a midwife, than the above? And this is only a sample taken at random of treatment, quite as insufficiently given in other conditions.

Selected Papers in Gynaecology and Obstetrics. By D. BERRY HART, M.D., F.R.C.P.E., &c. Edinburgh and London: W. & A. K. Johnston. 1893. 8vo. Pp. 239.

The thanks of the profession are due to Dr. Berry Hart for bringing out this work, and giving in compact form the valuable results of his labour, which previously had been scattered in many different journals throughout the United Kingdom.

The work as it stands consists of 231 pages, and contains 49 illustrations, many of which are original and have appeared for the first time, while others are reproduced from Hart and Barbour's "Atlas of Pelvic Anatomy."

Much praise must be accorded to the publishers, Messrs. W. and A. K. Johnston, Edinburgh, for the highly artistic manner in which their part of the work has been carried out. The plates are beautifully executed, and the distinctive letters are so clearly printed that the study of them becomes a pleasure, and not a distracting labour—the result too often of endeavouring to decipher many of our text-book prints.

The book consists in chief part of Special Anatomy, Physiology, and Pathology, and as such, we fear, will not find its way into the hands of many practitioners, for it lacks in great part the practical value which alone can make a book universally popular now-a-days. Nevertheless, we believe that for many years to come it will stand out as the most important contribution to the anatomy of the pelvic organs published in this or any other language.

Dr. Hart has employed five different methods of investigation in order to arrive at the anatomical results which he now gives to the profession at large, viz.:—

1. Ordinary dissections.
2. Dissections after hardening.
3. Sections after freezing.

4. Sections after freezing, followed by fixation in plaster and careful dissections.

5. Microscopical sections of the foetus.

To illustrate how fallible the first and most usual method is we read:—"Thus in a well-known anatomical text-book (Gray's, 7th edition), deservedly popular amongst students, there are at least six errors in the drawing of the sagittal section of the female pelvis, and in the drawing of the external genitals, three."

No doubt is thrown on the accuracy of the results obtained by the frozen sections, and the method of fixing the parts in plaster is the one especially approved of by Dr. Hart.

On the other hand, the author believes that the bimanual mapping out of the pelvic organs in the living, as practised by Schultze, is utterly fallacious. The objections he urges against it are that, in the first place, the organs are pushed out of their natural position before they can properly be grasped; and in the second place, he considers its failure to determine the anatomy of the pelvic floor sufficient of itself to condemn it. As regards his first objection we do not at all agree with him that a skilful bimanual examination, and especially under chloroform, must of necessity displace the normal relation of parts.

Fig. 1 is a drawing from a frozen section of a healthy adult woman whose bladder and rectum were found to be naturally empty, and gives, in Dr. Hart's opinion, the most perfect view of the pelvic floor with the uterus and its annexa that he has ever before seen.

The portions of this work which deals with other than anatomical subjects appears to us in many places to be open to criticism. In Chapter VIII. we find an involved definition of the meaning of the word "position" in midwifery, viz.:—"Position is the relation to the upper strait of the pelvis of that portion of the presenting part of the foetus which should first rotate to the front in the movement of internal rotation." The present nomenclature employed to define the various positions of the foetus at the commencement of labour is condemned—not without reason—but the author's suggested alterations do not, at all events, err on the side of simplicity. Again, the theory as to the separation of the placenta in the third stage of labour is particularly far-fetched. Shortly stated, it is as follows:—A relaxing uterus will increase the area at the placental site; aspiration by the foetus of blood contained in the placenta will diminish the size of the latter; and in this way detachment of the placenta must necessarily follow.

We do not believe Dr. Hart's method for supporting the perineum is sound in theory, and are convinced that in practice many other more efficient plans are forthcoming.

In Chapter XX. the opinion held by many eminent authorities as to the possible growth of the placenta after the death of the fetus in tubo-peritoneal gestation is vigorously combated by the author. On this subject he writes as follows:—"The primary grafting of villi on the free surface of the peritoneum is a myth, and so with its discredit the dependent myth of the placental growth after foetal death must disappear."

In conclusion, we would like to call the attention of our leading obstetrical text-book writers to the following passage in the same chapter of this valuable work:—"We now know that there is no primary peritoneal pregnancy—i.e., no case known where the placenta has had the free peritoneal surface as its maternal portion."

Manual of the Diseases peculiar to Women. By JAMES OLIVER, M.D. (Edin.). London: J. & A. Churchill. 1893. 8vo. Pp. 211.

THE dry work of the reviewer has been diversified in the perusal of this book, and he has no hesitation in stating that, as an amusing production, it will compare favourably with many of our comic weeklies.

The author, in his Preface, states that, "after prolonged study, he has produced the work," and adds that "as little superfluous matter as possible is introduced." He accordingly proceeds to let us know the chief methods employed in the rearing of prize poultry, and the gestation periods of many animals—the python, cow, sheep, pig, dog, cat, &c.

A chapter is devoted to the evidence of a uterine nerve centre in the medulla oblongata. The methods of physical diagnosis in gynaecology, on the other hand, are dismissed in 48 lines.

Abortion, hydatid mole, hydramnios, and many other conditions of the pregnant woman, are treated of as gynaecological complaints.

The author confesses himself unable to diagnosticate endometritis, but recommends, nevertheless, as treatment that hot vaginal douches should be used, and quite ignores the existence of any treatment which has for its object the cure of the disease by direct applications to the membrane itself.

It is not, however, until we reach Chapter XX. that we are

fully able to appreciate the value of the work before us, and we cannot do better than give our readers some extracts from the chapter and allow them to form their own conclusions. As regards the position of the uterus we read:—"Its attitude is erect, and this position is maintained in consequence of some inherent qualities of the uterus itself. . . . By virtue of these physico-chemical properties the influence of gravitation and other incident forces is counteracted. . . . The habit of the uterus to maintain the erect position may be changed in consequence of some alteration in the physico-chemical qualities of those tissues on which this character depends. Trees, we know, which have always grown erect may, when transferred to some new soil or climate—and even in some rare cases independently of translation—become recumbent." The author then goes on to state his opinion that a deficiency of water in the uterine tissues is one of the chief causes of displacement, and mentions what he considers an analogous condition in botany:—"If we cut a flower, but do not place the cut end in water, the stalk soon becomes flaccid and the flower droops."

Amongst other practical information at the disposal of the readers of this book, we are informed that in "the *Fritillaria imperialis* the flowers are pendent, whilst the fruit is erect;" and that "the awn of the seed capsules of *Erodium gruinum* becomes twisted into a spiral at its lower end when the fruit dries."

Having touched lightly on physics, the author proceeds with all solemnity to make the following remark:—"It is now generally admitted that plants and animals are not only reproduced from cells, but that they consist of cells."

Our readers will, doubtless, not be surprised to hear that the writer of the above extracts condemns pessaries in no unmeasured language. "It is impossible to see how they can affect the configuration or position of the uterus except in a few rare cases, and in such only on a tension theory;" and again, "In fact this method of treating flexions and versions of the uterus is not rational, and will not long be tolerated." As an alternative, he mentions, as a means of raising the displaced uterus, "If version is due to want of tone an attempt should be made to restore such by the administration of blood, nerve, and general tonics. . . . Sometimes a lime salt, like chloride of calcium, will prove beneficial."

We hope that our readers have obtained, by the perusal of

these few passages, some idea of the usefulness of this work ; and, in conclusion, we would strongly recommend the author to bring out a new and revised edition which might lack in originality what it gained in views more in accordance with those held by the modern general practitioner, for whose education he is so particularly solicitous.

An American Text-Book of Surgery for Practitioners and Students.

Edited by WILLIAM W. KEEN, M.D., LL.D., and J. WILLIAM WHITE, M.D., Ph.D. Profusely Illustrated. Philadelphia : W. B. Saunders. 1892. Pp. 1209.

No higher compliment can, we think, be paid to a book than holding it over for a lengthened period for review. It is easy to eliminate the chaff and the dross ; it takes longer to weigh the value of the fertile grain and the golden metal. Hence it is that the estimate we have formed of this American Text-book of Surgery is one that has been tried in the crucible of experience, and has stood the test of time. The work is the production of thirteen American surgeons who are associated with the editors-in-chief, whose names we have given above ; but as we are told in the preface—"The entire book has been submitted in proof-sheets to all of the authors for mutual criticism and revision." And it is added—"As a whole, the book may, therefore, be said to express upon important surgical topics the consensus of opinion of the surgeons who have joined in its preparation, although it must be understood that, while it thus represents in general the views of all the authors, each individual author is free from absolute responsibility for any particular statement." The result is a work that is singularly uniform—a due proportion being everywhere observed between the relative branches of surgery ; but, on the other hand, a great deal has been lost. We miss that dogmatism of teaching in special subjects which either carries immediate conviction with it, or rouses the reader to investigate the subject for himself ; we find a temporising tendency throughout, so that the book neither represents the classical limitations of surgery, nor yet puts before the student, in their staring nakedness, the iconoclastic tendencies of modern times. An excellent introduction deals with the subject of surgical bacteriology, which is illustrated by numerous excellent plates and drawings of the more usual forms of bacteria ; a subject further carried out in the

chapter dealing with the traumatic fevers, and suppuration and abscess. The section dealing with diseases of bone is remarkably good as far as it goes, and is illustrated with some admirable plates of bone diseases; but a subject of such importance demands more adequate treatment in a book which lays any claim to the title of text-book of surgery. No mention whatever is made of *osteitis deformans* (Paget's disease), of the bone changes in *leontiasis ossea*, or in *acromegaly*—a fact more remarkable considering the fondness of our transatlantic brethren for the products of the continental schools of medicine and surgery. The chapter dealing with abdominal lesions is full and admirable in every respect. Nor is this to be wondered at when we find the name of Nicholas Senn amongst the contributors. The only omissions we have noticed are a few of the more recent procedures—justly omitted in such a work, as not having been sufficiently tried by the time-test to merit their introduction as recognised surgical operations.

The daily increasing importance of brain surgery is here fully recognised. The various conditions requiring surgical intervention are adequately discussed, and numerous plates and diagrams illustrate the important points to be observed in the accurate differentiation and localisation of intra-cranial lesions. Considering the amount of work that has been done in America in this field of surgery, it is not to be wondered that a large amount of space is devoted to its consideration in this volume.

The very important subject of hernia is adequately dealt with in Chapter VI., which deals with diseases and injuries of the abdomen, and we have no hesitation in saying that it is one of the best, if not the best, of the many articles which have appeared on this subject during recent years. No surgical region has shown such marked advance in operative treatment, and the surgeon will find here a faithful reflex of the best that is thought and known in this special branch of general surgery.

The chapters dealing with the surgery of the eye and the ear are quite inadequate to the subject, and we agree with the opinion of those who hold that such specialised subjects should be totally omitted from text-books of modern surgery. If specialism has any claim to a separate existence at all, we think it must be in relation to these special sense-organs.

Book IV. professes to deal with operative surgery in the space of 113 pages. When we add that in this cribbed and cabined space minor surgery and also bandaging are dealt with, it is need-

less to say the space is overcrowded. In justice it must be said, however, that many of the operations of surgery are dealt with under special headings, so that the disproportion between theoretical and operative surgery is not so great as is at first sight apparent. This section is illustrated with reproductions of Macleise's celebrated drawings, which will doubtless prove of help to those who, having forgotten their practical anatomy, are compelled to have recourse to drawings for information on the relations of arteries.

To sum up, we consider the book one of the best general treatises on up-to-date surgery it has ever been our good fortune to come across. There is throughout a wholesome avoidance of that pitfall both to student and teacher—the bowing of the knee to the Baal of authority; and it is this very independence of thought and writing that makes us welcome and recommend a book which is in itself intrinsically good, and is at the same time a true reflex of surgery and surgical practice as adopted by our transatlantic brethren of to-day.

The Art of Living in Australia (together with three hundred Australian Cookery Recipes and Accessory Kitchen Information, by Mrs. H. WICKEN, Lecturer on Cookery to the Technical College, Sydney). By PHILIP E. MUSKETT, late Surgeon to the Sydney Hospital; formerly Surgeon Superintendent to the New South Wales Government; Medical Superintendent, Quarantine Station, Sydney; and Senior Resident Medical Officer, Sydney Hospital. London, &c.: Eyre & Spottiswoode. Pp. 431.

We feel as perplexed as *Punch's* Cork Militia sentry, when a gorgeous footman passed his box, "Am I to salute him or no? Is he a general or a serving-man?" Are we to review it or no? Is it a medical work or a cookery-book? Mrs. Wicken's culinary contribution occupies 155 pages of the 405; and on this (Part II.) we confess ourselves incompetent to express an opinion. An expert, however, assures us that the recipes are economical and good.

This culinary part is not, however, so incongruous when it is understood that Mr. Muskett's principal object, in this work, is "to attempt to bring about some improvement in the extraordinary food-habits at present in vogue" in Australia. The Australian

dietary is, he considers, altogether unsuitable to a semi-tropical climate—the consumption of meat and tea being injuriously excessive—

"On the other hand, there has been no real attempt to develop our deep-sea fisheries; market-gardening is deplorably neglected, only a few of the more ordinary varieties being cultivated; salads, which are easily within the reach of every home, are conspicuous by their absence; and Australian wine, which should be the national beverage of every-day life, is at table—almost a curiosity."

The book, then, is intended for popular instruction, not for the profession. Unless this is borne in mind many of its precepts will be suggestive of teaching aged relatives the art of sucking eggs. Popular though it be, however, it contains a considerable amount of information scientifically and professionally interesting. For example, we have a comparison of the climates of the chief cities with those of European, American, and Indian cities, which we subjoin, combining two of Mr. Musket's tables into one:—

Cities	Mean Annual Temperature	Mean Summer Temperature	Mean Winter Temperature
Sydney	62·9	70·0	58·7
Melbourne	57·5	64·9	53·8
Adelaide	63·1	72·4	58·4
Brisbane	67·7	75·2	64·3
London	50·8	62·9	39·5
Edinburgh	47·5	58·0	38·0
Dublin	50·0	61·1	40·7
Marseilles	58·3	72·9	45·2
Naples	62·0	74·4	47·6
Messina	65·8	77·2	55·0
New York	53·2	70·9	30·1
San Francisco	56·2	60·0	51·6
New Orleans	69·8	82·0	55·8
Bombay	78·8	82·6	73·8
Calcutta	78·4	83·3	67·8
Madras	82·0	86·4	76·6

It pleases the author to arrange his hygienic subjects under five heads, which form the Alphabetical Pentagon of Health. They

are Ablution, Bedroom Ventilation, Clothing, Diet, Exercise. He indulges in some exstatics about the number **FIVE**, which an irreverent reader would, we fear, describe as twaddle; the Code Napoleon, for instance, we are gravely reminded, is divided into *five* parts. We may pass over the A, B, C. Under Diet there are some statistical facts of interest.

Australians, it appears, smoke too much. The proportion of smokers in the population is not, perhaps, greater than it is elsewhere; but the average amount of tobacco consumed for each inhabitant is high. The average for the five colonies of Australia proper is nearly 3 lbs.; Queensland consuming 3·53 lbs.; West Australia, 4·11 lbs. The figures given for comparison with other countries are as follows:—Italy, 1·34; United Kingdom, 1·41; France, 2·05; Germany, 3·00; Austria, 3·77; Turkey, 4·37; United States, 4·40; Holland, 6·92. Of course we cannot vouch for the accuracy of these figures, their source and method of preparation not being indicated. They are useful for rough comparison only.

In the consumption of butcher's meat Australia stands higher than any other country in the world. Mr. Muskett says:—

"The amount of meat required for each member of the community every year in New South Wales is 291 lbs.; in Victoria, 275 lbs.; whilst in Queensland, 370 lbs. are called for. On the other hand, in the United Kingdom only 109 lbs. are similarly needed; in the United States of America, 150 lbs.; while the figures for the different European countries show an average of no more than 70 lbs." "The striking features, then, in connexion with the Australian dietary are this extraordinary consumption of meat and the faith which is presumably attached to its food value. It is no exaggeration to say that the vast majority of our people believe implicitly in the necessity for meat at their three daily meals, and not only is this the case in the cooler parts of the year, but it is practised universally during the height of the summer, without being modified in the slightest degree. Thus the student of ethnography is presented with the somewhat curious anomaly of a people living in a summer temperature of 70° or 80° in the shade eating more meat than do the bulk of the inhabitants of Great Britain and Ireland (with their ice and snow) during their winter months. It is one of the characteristics of the Anglo-Saxon race, however, this inability to appreciate the necessity of conforming to new climatic conditions in which their lot may be cast. It will be the same, too, when the British restaurant-keeper begins business in Equatorial Africa."

Another dietetic item, in which the Australians indulge to excess,

is tea. It is said that the four millions of population consume more tea than all Europe, exclusive of Russia. In the United Kingdom the average consumption per head is 5 lbs., and in the United States, 1·5. Each inhabitant of South Australia requires, on the average, 6·5 lbs.; of Victoria, 7·7; of New South Wales, 7·8; of Queensland, 8·4; of West Australia, 10·6.

The seventy pages which Mr. Muskett devotes to Australian wines will be read with interest. On the wine industry, in his opinion, the prosperity of Australia will ultimately rest. The first vine was planted in 1791; in 1815 the first vineyard was formed by John Macarthur, the same enterprising colonist who introduced the Merino sheep in 1797. The author says:—

“At present, the whole of Australia annually produces only a little more than three million gallons of wine, while the yearly yield of France is 795; of Italy, 798; of Spain, 608; of Hungary, 185; and of Portugal, 132 million gallons The whole of the five colonies of Australia and Tasmania have altogether no more than 48,099 acres under vine cultivation. The total amount of wine made in the six foregoing colonies for the year ending March 31st, 1892, was only 3,604,262 gallons. The city of Paris itself requires nearly 300,000 gallons of wine daily, so that this single city would consume in twelve *days* all the wine which the whole of Australia takes twelve months to make. So far back as 1875, the production of wine in France alone was 1,844,400,602 gallons. And, lastly, there is just one more fact worth remembering, which is, that the approximate value of the 1890 vintage to France was neary £40,000,000 sterling.”

To Australians, to whom this work is dedicated, it will be most useful; while for foreigners, like ourselves, it contains much that is instructive and interesting.

Aids to the Diagnosis and Treatment of Diseases of Children (Medical). By JOHN McCAW, M.D., L.R.C.P.; Physician to the Belfast Hospital for Sick Children, &c. London: Baillière, Tindall & Cox. 1893. Pp. 181.

We confess we do not like the class of book known as “Aids.” We have, however, least aversion for those “Aids” which are intended solely for examination use, which are used only by students, and which cannot do harm to anyone, unless, perchance, to the too confiding student who trusts by their use to pass his examinations. We entertain a strong dislike for those manuals which,

without attempting to be complete, treat of these subjects which may involve the life or death of human beings; and we hold that the practitioner will do more justice both to his patient and to himself, and will in the end get better value for his money if he purchase only high-class and standard works on the different branches of his profession.

Having delivered ourselves of our views concerning "Aids" in general, we must say that Dr. M'Caw's book contains a great deal of information put into a most concise form. It gives a short account of the causation, symptoms, treatment, &c., of all the children's diseases likely to be met with. A number of prescriptions are collected at the end, and are often referred to in the articles on the various diseases. A good deal of attention is paid to diagnosis, and some useful tables on this subject are given.

If every case of disease ran a typical course we might recommend this book; but as the majority of ailments met with in practice do not conform in all respects to the normal type, we recommend our readers to supply themselves with more complete and less dogmatic works.

Surgical Ward Work and Nursing: A Handbook for Junior Students of Medicine and Nurses. By ALEXANDER MILES, M.D., C.M., F.R.C.S. Edin. With one hundred and ninety-nine illustrations. London: The Scientific Press, Limited. 1894.

In this well-printed and copiously-illustrated octavo of 197 pages an excellent selection of practical information has been prepared for the use of the classes of readers for whom it is intended—the medical students and the nurses of the *fin-de-siècle* period. Both the medical student and the nurse of the present age require to be skilled, in their respective capacities, to a degree which would probably startle the spirits of those of similar callings in the early part of this century if they were now permitted to revisit the scenes of their former labours.

The present volume is divided into four sections, respectively devoted to, "Antiseptic Surgery," "The Use of Rest in Surgery," "Bandaging," and "Surgical Instruments and Appliances." The *raison d'être* of its existence is well expressed by the author in his preface: "At the foot of the ladder of surgical literature there appears to the author to be still a step a-wanting. The junior student and the nurse probationer entering on the duties of the

surgical ward require a guide more minute and detailed than is furnished by any of the excellent works on minor or practical surgery now at their command. In the hope of filling the gap, rather than with a desire to traverse ground already so satisfactorily occupied, this little work is sent out." We entirely agree with the author in his recognition of the vacancy which undoubtedly existed, and we congratulate him on the result of his meritorious effort to fill it. We cordially endorse the quotation given in the preface, that "There is no real elevation of mind in a contempt for little things." The microscopic science of the present day has definitely demonstrated the fact that the universe is made up of "little things," and of nothing else.

There is really an immense amount of practical information given in the pages of this little book. The section on Antiseptic Surgery, which opens the volume, omits very little of real value to either nurse, student, or qualified practitioner. There are a few woodcuts supplied. Those of the microscopic organisms, given in Chap. I., are, we are sorry to be obliged to remark, extremely crude, but sufficiently well in keeping with the modest pretensions of the work. The other illustrations, although roughly prepared, are instructive as well as copious in number. A really enormous amount of attention is given to the operation table and the comforts of the patient's bed, and a very full storehouse of information is supplied on the subjects of Surgical Appliances and Instruments. We cordially recommend the volume to the class of readers for whom it has been prepared.

Hospital Sisters and their Duties. By EVA C. E. LÜCKES, Matron to the London Hospital. Third Edition. London: The Scientific Press, Limited. 1893.

In this very neatly printed booklet of 204 pages, the Matron of the London Hospital offers to her less experienced juniors the advice which the practice of her important and responsible position has so well qualified her to give. The first ("Introductory") chapter includes twenty-four pages, and contains prefatory hints and instructions to those who are entering upon the necessary training for hospital work. As the authoress truly says, "Women whose greatness and tenderness are rooted in great strength of character, whose perception of the needs of those dependent upon them is quick, and who are thoroughly trustworthy and cheerfully

earnest in all that they undertake—these are the characters best fitted for the care and guidance of others, and they will find in a hospital a splendid opportunity for the exercise of true and noble influences towards useful ends." She has a lofty idea of the duties and position of a "sister," and considers that those who are about to enter on this important vocation should be previously prepared by a high-class mental training. "It is a mistake to suppose that there is no advantage in possessing a thorough education before entering upon hospital work, or to imagine, as some have stated, that any general knowledge previously acquired is thrown away in a life of this kind. . . . The cultivation of mind, which is one of the best results of a good education, is certainly not of less value to a hospital sister than to women engaged in other work."

Throughout the whole of this little volume the authoress maintains the same sensible tone of advice, and adheres to the same high ideal which she has formed of the profession of the sister, and the moral and educational training which should prepare for it. The text is sub-divided into seven chapters. The second deals with the "Domestic management of Wards ; Supervision of Ward-maids." The reader is told that "Everything in the wards, literally from the floor upwards, is the sister's business." "If the sister's mind is a blank on the subject of cooking, how can she see after the patients' diet with any degree of efficiency?" "When a sister takes up the management of a ward, she will do well, unless previously familiar with it, to make no sudden change in any particular." "It is not desirable for wardmaids and members of the nursing staff to be on terms of familiarity." "To encourage others to think and act for themselves, whilst insuring the efficiency of the work for which she is responsible by supplying their defects, is the real object at which a sister should aim." And so on ; whilst, in addition to the general advice thus conveyed, the details required in the management of everything connected with a hospital ward are clearly defined and illustrated.

The next chapter deals with the "Relationship of Sisters and their Staff Nurses." Here we have the same high moral and ethical standard maintained, and united throughout with the same judicious attention to every practical detail, which we have seen to characterise the former sections. We do not consider it necessary to enter into more minute particulars. The following portions of the book, which deal with the training of probationers, "New"

and "Advanced," "Relationship of Sisters to their Patients," &c., all preserve the same features.

In conclusion, we can only say that we have nothing but praise for the tone and style of this volume. Every sister must profit by its perusal, and every intending probationer will find in it the sound advice and necessary insight which she should always acquire before attempting to enter on the arduously responsible duties of a most important profession.

On Gout as a Peripheral Neurosis. By WILLOUGHBY FRANCIS WADE, F.R.C.P., &c.; Consulting Physician to the General Hospital, Birmingham. London: Simpkin, Marshall, Kent & Co. 1893.

THIS essay represents much thought and a good deal of investigation of the subject, carried out to a considerable extent by Mr. Wade on his own person. He observed on careful examination that the tenderness over a gouty joint was not uniform; that it often existed in the form of lines, while the skin on either side of this line was quite painless on pressure. In some of the cases described part of this tender line lay in the midst of red and swollen tissues, while the upper portion lay in a part which had not been red, swollen, or tender.

Details are given of these lines of tenderness in several cases of gout in the hands as well as in the feet. When the gout attacks the hypothenar region, extreme tenderness will be found to exist on pressing the wrist just to the radial side of the pisiform bone. When the disease manifests itself in the thumb, pressure on the wrist in the interval between the two extensors of the thumb is acutely painful.

Details are next given of the exact places in the feet where these lines of tenderness are to be found.

If the anatomy of each of these spots be carefully examined, it will be found that in every case the area of tenderness on pressure corresponds to a nerve trunk. There appears, therefore, to be a neuritis in many cases of gout.

Is this neuritis a primary affection, or is it secondary to inflammation of the joint? Mr. Wade favours the former view. He found that in his cases passive movements of the joint surfaces upon themselves—the first phalanx being held firmly between the finger and thumb, and all possible pressure made on the joints—

were absolutely painless. There was no evidence of fluid in the joint. It is impossible, he says, without cutting into it, to obtain stronger evidence that the joint was healthy. In many cases, then, he holds that a gouty neuritis occurs, and that subsequently, whether as a result of trophic or other influence, a gouty arthritis follows.

Mr. Wade's explanation as to why it is that the great toe joint is so much more often affected than any other joint, is interesting: "It cannot be because of its remoteness from the centre of circulation—other joints are equally far removed. Nor can it be because the toe supports so much weight. The great toe shares the weight with the other toes, and the combined area of all the metatarso-phalangeal joints quite equals, if it does not exceed that of the ankle joint—a joint which also bears the whole body-weight. The reason is because the nerves round the great toe joint are not deeply seated in the soft parts. They are subject to pressure on the plantar aspect by the weight of the body, on the inner and upper aspects by the upper leather of the shoes; whereas the nerves of the other toes which are rarely attacked are protected by the soft parts, and are also less pressed upon by the boot leather."

It will require more investigation before we can recognise that neuritis plays such an important part in *all* cases of gout. Mr. Wade's essay is, however, both interesting and instructive, and it shows us that it will be necessary in future to examine with more particular care the local manifestations of gout.

The Narrative of a Busy Life. An Autobiography. By ARTHUR HILL HASSALL, M.D., Lond.; Member of the Royal College of Physicians of London; late Senior Physician to the Royal Free Hospital; Founder of, and Consulting Physician to, the Royal National Hospital for Consumption and Diseases of the Chest. London: Longmans, Green & Co. 1893. 12mo. Pp. 82.

DR. HASSALL'S title-page is characteristic. It is, we venture to say, unquestionable that this versatile and most industrious physician is better known to the profession and to the public as an analytical chemist than as a practitioner. Throughout this highly interesting autobiography, however, his invaluable services in the suppression of adulteration are represented as altogether secondary to his work as a practising physician. We cannot but

think that even the founding of the Hospital for Consumption at Ventnor, due to Dr. Hassall's untiring efforts, was less beneficial to British humanity than his share in the *Lancet's* crusade against adulteration of food and drugs, which occupies so unimportant a share of this account of his life and work, and which is ignored in his title-page.

Ireland may claim a large share of Dr. Hassall. His father anticipated modern medico-military nomenclature, being both surgeon and captain in the Durham Fencibles. The "Fencibles," it will be remembered, were English militia battalions which enjoyed the privilege of serving in Ireland, and were employed in suppressing the insurrection of 1798. In this work some of them showed great zeal, and left behind them an unsavoury reputation. The Durham Fencibles, in particular, saved Ireland, "if not the British Empire," by intercepting the rebels on their march to sack Dublin—an intention on which history had hitherto been silent. The gallant captain was present at Gorey, Arklow, and Vinegar Hill, and in Downpatrick he met his fate. "He was standing on the step of a hotel in Downpatrick when a ladies' school passed; he was struck with the appearance of one of the young ladies, boldly made himself known to the mistress of the school, and after due inquiry and the necessary preliminaries, the lady—a Miss Anne Sherrock—became Mrs. Thomas Hassall." On his return to England he was appointed to the 1st Surrey Militia through the patronage of the Lord Arthur Hill of that day, to which fact our author (the youngest of five children) owes his *prénomina*. His mother's sister was the wife of Mr. Murray, afterwards Sir James Murray and Inspector of Anatomy in Dublin. In 1834 Dr. Hassall became an inmate of his uncle's house in Merrion-square, with a view to studying medicine. He attended the schools of "Peter-street, Digges-street, and Trinity College," Jervis-street and Mercer's Hospitals. In 1839 he passed for the diploma of the London College of Surgeons and settled down in practice.

The untiring industry of Dr. Hassall, and the ability with which he pursued the various bye-subjects to which he devoted himself while following his primary profession as a practising physician, have been most conspicuous.

An appendix contains a list of nearly a hundred papers on scientific subjects, but, as we have already stated, his chief claim upon our admiration and gratitude rests on his investigations into

the Adulteration of Food. In 1850 his attention was drawn to this subject, and coffee was the article which he examined first. "Nearly all the samples were adulterated most extensively in a variety of ways; some consisted of little else than chicory, which was the most frequent adulterant, though in many cases roasted wheat, rye, beans, peas, burnt sugar, &c., were also detected in considerable amounts." Old Indians, acquainted with Sir Charles Woods' merits as Secretary of State for India, will not be surprised to hear that, when he was Chancellor of the Exchequer, he declared in his place in the House of Commons (on the authority of "three of 'the most distinguished chemists of the day'") that "neither by chemistry nor in any other way can the admixture of coffee with chicory be detected." The *Lancet* "Analytical Sanitary Commission" was organised by Dr. Hassall and Mr. Wakley for the systematic examination of foods, &c., with the publication of names and addresses, in full, of the sellers of the substances analysed. The first report appeared in January, 1851, the last in December, 1854; 2,500 samples were examined, including all the principal articles of consumption. The dealers remonstrated—naturally; but Mr. Wakley's courage and public spirit did him no injury. "A few lawyers' letters were received, and in one or two cases actions were commenced, but only went as far as the delivery of the declaration." This fact sufficiently proves the scientific accuracy of Dr. Hassall's work, of which we shall quote one example:—

"A mustard manufacturer sent the *Lancet* a sample of what he described as genuine mustard, an article which, at that date, did not exist; all mustard then manufactured consisting of a mixture of mustard, wheat-flour, and turmeric, the flour greatly predominating in inferior samples. I examined this sample, and in the next number of the *Lancet* the following notice appeared—'Our correspondent is deceived; the article he has sent us is not a specimen of pure brown mustard, as it contains a small quantity of turmeric.' This called forth a rejoinder from the sender, who, acknowledging the correctness of the statement, affirmed that the small addition of turmeric, 1 in 448 parts, was made simply to improve the colour."

In 1854 Dr. Hassall turned his attention to the London water-supply, bringing to the investigation his skill in the use of the microscope—then almost for the first time applied to the examination of water. He also examined microscopically, at this time, the characteristic discharges in cholera, detected "vibriones"

in great abundance, pointed out that the presence of an alkaline fluid was necessary to their development, and thus explained the value of sulphuric acid in checking the diarrhoea of the disease. In this investigation he *almost* anticipated Koch's discovery of the specific bacillus of cholera. "From the characters exhibited," he says, ". . . and from their general agreement with Koch's description, there is not the smallest doubt that the cholera bacillus was present in the discharges in nearly every case, and was first seen by me during the cholera epidemic of 1854."

We have already referred to the list of Dr. Hassall's papers, &c., published from 1840 to 1893, which is subjoined to his "Narrative." There are besides, in an appendix, three valuable papers—"On the Colour of the Leaves of Plants and their Autumnal Changes," "On the Colouration of the Leaves of Plants," and "On the Climate of San Remo, based on the Meteorological Observations of Eleven Consecutive Seasons." The book is somewhat carelessly printed, but this is a trifling drawback to a record of hard and varied work, carried on for half a century, with immense benefit to professional and general scientific knowledge. We have indicated only two or three of the many subjects with which Dr. Hassall deals in his autobiography. We shall be glad if we have induced our readers to read a most interesting work for themselves. The author is still with us, and long may he remain with us.

BRITISH MEDICAL SERVICE.

THE following is the official list of Surgeons on probation of the Medical Staff of the British Army who were successful at both the London and Netley Examinations. The prizes are awarded for marks gained in the special subjects taught at the Army Medical School. The final positions of these gentlemen are determined by the marks gained in London added to those gained at Netley, and the combined numbers are accordingly shown in the list which follows:—

January 31st, 1894.

		Combined Marks	Combined Marks
1.	Prynn, H. V.	- 4,736	7. Cameron, K. M. - 3,980
2.	Master, A. E.	- 4,685	8. Fleury, C. M. - - 3,717
3.	Dansey, Browning G.	4,827	9. Fox, A. E. - - - 3,657
4.	Clark, E. S.	- - 4,078	10. Green, S. F. - - - 3,628
5.	Barnett, K. B.	- - 4,051	11. Tibbits, W. - - - 3,485
6.	Boyle, M.	- - - 4,015	

PART III. SPECIAL REPORTS.

REPORT ON

MATERIA MEDICA AND THERAPEUTICS.*

By WALTER G. SMITH, M.D.; President of the Royal College of Physicians of Ireland; Professor of Materia Medica, School of Physic in Ireland, Trin. Coll. Dubl.; Physician to Sir P. Dun's Hospital.

AMONG the new comers to the ranks of therapeutics furnished by organic chemistry during the past year, we do not find many whose claims demand serious attention. The incessant clamouring for new drugs is to be deprecated, and fortunately there seems to have been a healthier tendency of late to study more carefully the qualities, for good or for evil, of some of the claimants which have been brought before us within recent times.

In reference to older drugs, one of the best contributions that has been made of late to rational therapeutics is contained in Dr. Stockman's paper on the Treatment of Chlorosis by Iron and some other Drugs.—(*Brit. Med. Journal*, April 29, May 6, 1893.)

A most interesting topic, and one upon which our knowledge is sadly deficient, is the investigation of the connection between the chemical constitution and physiological action of remedies. It is true that already we have some clues, and in the class of neurotic remedies especially we hope for increasing light in this direction. May we not look forward to apprehending more clearly *how* certain good and desirable effects are linked to chemical structure, and *how* certain ill effects may be accounted for or guarded against?

Nencki and Boutmy (*Arch. f. exp. Path. u. Pharm.*, 1892) have studied a special case of this relationship, and they have shown that certain poisonous "aromatic" compounds become relatively

* This Report is based upon an article by the writer in the "Year-Book of Treatment" for 1894.

non-toxic when we introduce into their molecule the carboxyl (COOH) group, which is saturated with oxygen, and is not reducible in the organism. Similarly with the sulphonic group. As striking examples we may point to the energetic poisonous qualities of phenol (carbolic acid) as compared with its carboxyl derivative, salicylic acid. Or again, pyrogallol (pyrogallic acid) is a highly toxic substance, whereas its carbonic acid—viz., gallic acid—is non-poisonous, and has neither antipyretic nor antiseptic action.

The substitution of the amide (NH_2) group for H does not have a similar effect; witness phenocoll, which is the amide of phenacetin.

But, although we do know the chemical constitution of a good many important drugs, we cannot yet go very far, and we may well take to heart the criticisms, if we do not entirely adopt the conclusions, of Eichengrün, who recently gave an address upon this subject to the Chemical Society of Aix-la-Chapelle. Antipyrin and antifebrin, which are chemically slightly related, produce similar effects upon the animal organism; while, on the other hand, bodies of closely related chemical constitution are sometimes very different in their physiological action. Moreover, slight chemical alterations—e.g., homologues, substitutions, &c.—are accompanied by very considerable differences in physiological action. No doubt, in inorganic chemistry the action of all compounds of the same metal (K, Hg, Fe, Zn) is essentially similar one with another. But in the living organism, and with complex drugs, we must take into account all the determining conditions. For example, physical properties—e.g., solubility; and the disturbing chemical action upon the drug of various substances in the organism—e.g., albumen. Sometimes compounds, capable of resisting in a high degree chemical influences outside the organism, readily break up under the influence of vital processes, and *vice versa*.—(*Pharm. Journal*, July 1, 1893.)

In studying the physiological action of chemicals we ought first to be sure of their identity, purity, and liability to change. This is often a difficult question in the case of the many complex synthetic products which have invaded us, and for whose purity we are obliged to rely upon the reputation of the firm which produces them.

In the simpler case of chloroform we note with satisfaction the inquiries as to the existence of impurities in it, and as to the

possible effect of these upon its physiological action. It is reassuring to know that the amount of these impurities is very small, and does not seriously affect the administration of chloroform for anaesthesia.

It has also been conclusively proved that absolutely pure chloroform quickly (within one or two hours) spoils by exposure to light in presence of oxygen, whereas the addition of a minute proportion of alcohol—1 per cent. or less—has, as Squibb first showed forty years ago, a marked effect in retarding injurious change, and in rendering the deleterious products innocuous. Spoiled chloroform is liable to contain HCl, free Cl, and carbon oxychloride, COCl₂, (phosgene gas).—(*Pharm. Journal*, March 25, June 10, 1893.)

ANTISEPTICS, ANTIPYRETICS, ANALGESICS.

The “fever” of demand for new antipyretics has apparently cooled down under the free exhibition of them to which the profession and the public have been subjected; and the ardour of clinical experimentation has been further abated by the discovery of the dangerous qualities which many of these drugs were found to possess.

Thus Schmitt has ascertained that all the aromatic drugs used as antithermic remedies produce, in variable degree, changes in the blood, consisting in the conversion of oxy-hæmoglobin into methæmoglobin, a diminution of the “respiratory capacity” of the blood, and even destruction of the red corpuscles. These changes vary in intensity with the nature and dose of the drug studied, but for each drug are directly proportional to the degree of reduction of temperature produced. They may be roughly divided into the following groups: (1) Those which, with a medium dose only, fix the oxygen more firmly to the hæmoglobin—antipyrin, phenacetin. (2) Those which in moderate doses produce simple intracorpuscular methæmoglobinæmia—anisic acid, thallin, antithermin, kairin, exalgin, methacetin, acetylano-phenol. (3) Those which in moderate doses, especially if repeated a few times, produce methæmoglobinæmia with destruction of corpuscles—acetanilide, benzanilide, formanilide, methylformanilide, pyrodin.—(*Brit. Med. Journal* [Epitome], Oct. 15, 1893.)

But the thirst for new antiseptics is not yet assuaged, and a crowd of new compounds, or modifications of older ones, has been put forward. With many of these the time is too short or the evidence too slender to justify more than the briefest mention.

Thiocamf.—The use of sulphurous acid (SO_2) as a disinfectant has been long known, and G. F. Duffey invites attention to a liquid termed Thiocamf, which has been patented by Professor Emerson Reynolds. It is a compound of SO_2 gas with camphor and other substances. A six-ounce bottle of thiocamf will give off about 1,250 c.i. of SO_2 gas when exposed to the air.—(*Dubl. Journ. of Med. Sci.*, May, 1893.)

PHENOLIC COMPOUNDS.

Creolin has not gained much in popularity during the past year, but some surgeons will prefer it as an antiseptic.

Lysol has been largely used abroad. It is readily soluble, fairly active, and very cheap. I have seen the urine become dark red after irrigation of an operation wound (renal abscess) with lysol.

• *Saprol* is a cheap new disinfectant for hygienic purposes. It is a dark-brown oily liquid, and is composed of crude cresols dissolved in excess of petroleum hydrocarbons. Hence it is inflammable—a serious drawback—and it is not adapted for surgical practice.

Solutol is an *alkaline* solution of cresols, and not so well suited for surgical dressings.

Solveol is a *neutral* cresylic liquid, soluble in water in all proportions, and devoid of the greasiness which creolin and lysol exhibit. For surgical dressings a $\frac{1}{2}$ per cent. solution is used.—(Squibb, *Ephemeris*.)

Guaiacol, the chief constituent of beech-wood creasote, has been in considerable demand, and appears to be of undoubted service in the treatment of pulmonary tuberculosis. The benzoate, salicylate, iodide, and carbonate, especially the latter, have all found their use in individual practice (Squibb, *Ephemeris*). The results obtained in the treatment of pulmonary phthisis by hypodermic injections of guaiacol and iodoform, in combination and separately, are not encouraging, and this method does not seem promising.—(*Brit. Med. Journal [Epitome]*, Jan. 28, 1893, from *Gazz. degli Osp.*)

Naphthol.—The form known as β -naphthol has been in use, both internally and externally, for more than a decade. Within the last year or two its isomer, α -naphthol, has also been recommended as an antiseptic. It is stated to be more soluble and more efficient than β -naphthol, and is less poisonous, but more irritant locally.

Asaprol (not to be confounded with saprol) is the calcium salt of sulphonic β -naphthol. It is a white powder, very soluble in cold water. Incompatible with alkaline iodides, sulphites, and most alkaline salts, Stackler and Dubief report favourably of it in influenza, acute rheumatism, tonsillitis, and some other affections. Dose, 2 grammes the first day, and increased gradually up to 6 grammes, to be again reduced when the temperature is lowered. It is well tolerated by the organism, and is borne when sodium salicylate cannot be taken.—*Brit. Med. Journal* [Epitome], Nov. 19, 1892, from *Bull. Gén. de Thér.*)

Resorcin—a diatomic phenol—has steadily increased in favour, and has given excellent results in the treatment of diarrhoea of children, in the various forms of gastritis, and in gastric ulcer. As a local germicide and stimulant it is very efficient in tubercular and other forms of ulceration, and in pharyngitis and chronic rhinitis.—(Squibb, *Ephemeris*.)

SALICYLIC DERIVATIVES.

Agathin, a new compound of salicyl aldehyde with α -methyl-phenylhydrazin. Recommended by Rosenbaum in neuralgia and rheumatic affections. Dose, 5-10 grains, two or three times a day.—(*Ther. Monatsh.*, Jan., 1893.)

Malakin, a salicylic derivative of β -phenetidin. Given by Jaquet in 74 cases, and found to be valuable as an anti-rheumatic and antipyretic. Dose, 0.5-1 gramme, in wafers. Acts slowly and gradually.—(*Ther. Monatsh.*, Oct., 1893.)

Salophen has attracted some attention as a substitute for salol. It is acetyl-amido-salol.

In acute rheumatism it has been found useful by several observers (Flint, Hare, Koch, Caminer, Guttmann), and is to be preferred to the salicylates as being tasteless, unirritating, and free from depressing effects. Dose, 3-5 grammes a day, in powder. Also used in neuralgia and sciatica (Lutze). Decomposed by the pancreatic juice into salicylic acid and acetyl-amido-phenol. It is rather costly.—(*Ther. Monatsh.*, Oct., 1892; July, 1893.)

Salol has gained ground, and has proved itself an efficient anti-septic. E. Mansel Sympson advocates its use in some abdominal affections. For example, in "bilious" flatulence attended with pain, he gives 4-5 grains of calomel, followed in one or two hours by 10 grains of salol, repeated every four hours, and finds this plan to act like a charm. He likewise finds salol very valuable in

acute diarrhoea, and in enteric fever for deodorising the evacuations.—(*Practitioner*, Aug., 1893.)

BASIC COMPOUNDS.

Analgen (Spiegelberg, *Münch. med. Woch.*) is a synthetical derivative of quinolin, and enjoys a portentously long chemical name and formula which it is unnecessary to reproduce. It is represented to be a safe and efficient drug, similar in action to antipyrin, and a number of medical men have tried it in Germany with encouraging results. It is supplied in 7-grain tablets, and in elegant wafer cachets, each containing 7 grains. The maximum dose is 45 grains daily.

Phenocoll, an ally of phenacetin, has received increasing attention during the past year. It promises best in rheumatic and neuralgic affections.

Antipyrin has been partially pushed aside by the introduction of several of its derivatives or allies which possess similar, and perhaps superior, properties. Toxic cases from its use have been numerous—e.g., Guttmann reports a case in which the resultant symptoms resembled those of algid cholera.—(*Brit. Med. Journal [Epitome]*, May 6, 1893).

Formanilid.—Bókai states (*Cent. f. d. med. Wiss.*, No. 17, 1893) that Tauszk was led to test the value of formanilid in a number of clinical cases. The general conclusion was that formanilid is less liable than antifebrin to produce dangerous symptoms, is at least equally effective in neuralgia, and is superior to it as an antipyretic. Given to patients suffering from intercostal neuralgia, hemicrania, cerebral tumour, syphilis, lead colic, tabes dorsalis, coxitis, lumbago, myelitis, and cholelithiasis, it was found to be not inferior as an analgesic to antipyrin or antifebrin. It brought about sleep indirectly by stilling pain. The maximum dose given was 7½ grains a day. Its antipyretic power was tested in peri-typhlitis, empyema, acute rheumatism, malaria, pulmonary tuberculosis, pneumothorax, and typhoid fever. After a dose of 1½ gr. the temperature began to fall in about five minutes. With a dose of 4 grs. the fall of temperature averaged 4° F., the maximum being 6·5°, and the minimum 0·7°. In administering the drug it is advisable, if the temperature is below 102°, to begin with doses of 2½ grs.; if over 102°, with doses of 4 grs., and to repeat the dose two or three times a day. An advantage attending the use of formanilid is that the fall of temperature to the normal

is not accompanied by much sweating or shivering.—(*Brit. Med. Journ.* [Epit.], May 20, 1893.)

LOCAL REMEDIES.

Alumnol is the aluminium salt of naphthol-sulphonic acid, which contains 15 per cent. of sulphur. Chotzen (*Berl. klin. Woch.*, No. 48, 1892) has investigated its therapeutic action. It is a fine white powder, very soluble in water, in glycerine, and in warm alcohol. It is insoluble in ether. Heinz and Liebrecht have already reported on its physiological action, and have shown it to be a harmless, odourless, and antiseptic astringent. The author has used it in more than 300 cases. It was found curative when applied pure to soft chancres and abscesses mixed in the proportion of 10 to 20 per cent.; with inert powders in balanitis, erosions, moist eczemas, &c. One to 5 per cent. solutions were used in moist and papular eczemas, acne of the face, boils, and urethritis. Two and a half to 10 per cent. solution in alcohol was used for the treatment of eczema, urticaria, sycosis, favus, psoriasis of the head and face; and 2½, 5, 10, and 20 per cent. lanolin ointment for eczema, seborrhœa capitis, psoriasis, and favus. Alumnol varnishes were used in papular and squamous eczemas.

Gallanol is the anilid of gallic acid, and is prepared by boiling tannic or gallic acid with anilin. It forms colourless crystals with a bitter taste, sparingly soluble in cold water, readily soluble in boiling water and in alcohol. It has reducing and anti-fermentative properties, and Cazeneuve and Rollet recommend it as a non-toxic substitute for chrysarobin and pyrogallol in the treatment of psoriasis and eczema. Since it does not irritate, and does not discolour the skin, it may be safely used upon the face, head, and neck.

Forms of administration:—As ointment, in proportion of 0·5—3 parts in 30; or in traumaticin solution.—(*Ther. Monatsh.*, Sept., 1893.)

Scopolamin is an alkaloid which occurs in the root of *Scopolia atropoides* and other Solanaceæ, and is isomeric with cocaine. According to Schmidt the hyoscin of commerce is really scopolamin. Rählmann recommends it as a valuable mydriatic, superior to atropin in activity, and less liable to cause inconvenience. It may be used in solution, 1 to 2 parts per 1,000 ($\frac{1}{50}$ to $\frac{1}{2}$ per cent.).—(*Ther. Monatsh.*, May, 1893.)

Illig's observations confirm those of Rählmann, and he points out

that scopolamin is especially serviceable in those cases of inflammatory mischief in the eye where atropin is contra-indicated.—(*Ther. Monatsh.*, Oct., 1893.)

Diuretin is an unstable compound and an expensive one, and although still sometimes prescribed, it does not appear to bear out the favourable results at first claimed for it. It seems to act best in dropsy due to valvular disease of the heart, and has succeeded where digitalis failed.—(Aldabelle, Herrick, *Journ. Amer. Med. Assoc.*)

Caffein-sulphonic acid, a cheaper competitor of diuretin, has been introduced by Heinz and Liebrecht. It is said to be a specific stimulant to the renal epithelium, and to be without effect upon the blood-pressure. The average dose is from 4 to 6 grammes per day of the sodium, strontium, or lithium salt.—(*Ther. Monatsh.*, Oct., 1893.)

Dermatol has not supplanted iodoform, but finds its use as a desiccating and healing power. Shaniavsky finds it very satisfactory in purulent otitis.—(*Brit. Med. Journal [Epitome]*, Dec. 31, 1892.)

Emol is a soft impalpable powder—a kind of improved Fuller's earth, and is recommended by W. Allan Jamieson.—(*Brit. Med. Journal*, Aug. 26, 1893.)

Europhen—one of the most effective substitutes for iodoform—has been largely used in throat and nose affections, in spreading ulcers, and in soft sores. Like iodoform, its germicidal power is feeble.—(Christman, *Centralbl. f. Bakter. u. Parasit.*)

Ichthyol and *Thiol*.—*Thiol*, which is a sort of artificial ichthyol devoid of unpleasant smell has been favourably reported on by several writers during the past year, and is mainly employed in gynaecology and dermatology. Radcliffe Crocker prefers it to ichthyol. It is unirritating, and the stains produced upon linen are easily removed.

The literature of ichthyol is still abundant, and a few references may be noted. In gynaecology, H. Schultz, of Budapest, thinks very highly of ichthyol as a means of promoting absorption of inflammatory products and diminishing pain. He employs it mixed with glycerine (10 to 15 per cent.), or in ointment, with vaseline or lanolin (10 per cent.).—(*Orvosi hetilap.*, 1892.)

Polacco (*Internat. klin. Rundschau*, 1892), of Milan, is enthusiastic in its favour. After an experience of nearly 1,000 cases he considers ichthyol one of the most important gains to gynaecological

therapeutics. He uses tampons of 10 per cent. ichthyol-glycerin. Ullmann (*Arztl. Centr.*, Aug., 1893) extols ichthyol as an excellent absorbent and analgesic in affections of the skin and genital tract. Dockrell (*Med. Press and Circ.*, 1892) considers ichthyol to be of the greatest value in all inflammations of the skin.

Many authors (Neisser, Ehrmann, Jadassohn, Manganotti) testify to its value (1 per cent. solution) in the treatment of gonorrhœa.

Freudenberg praises the use of ichthyol suppositories (3 grs. to 10 grs. in each) in sub-acute and chronic prostatitis. He generally prescribes two a day—one in the morning after defecation, the other at bed time.—(*Sonder-Abdr. Centralbl. f. klin. Med.*, 1893.)

HYPNOTICS.

Nothing very striking in this sphere of action has been published. Sulphonal holds its own firmly, and has lost few of its enthusiastic advocates. In asylums for the insane it is now largely in use, and appears to be of special value in acute melancholia. It is folly to claim, as some feel disposed to do, that it is void of disagreeable results. One can hardly fail noticing untoward effects, especially in cases where much physical prostration is present. It has been stated that it is looked upon with such suspicion in Turkey that it has been interdicted throughout the Empire by Imperial decree.

Surely, caution should still be studiously observed in its use, and the more so as its more frequent employment would tend naturally to render us quite oblivious to its drawbacks and peculiarities. Fatal cases are still being reported, but they are not by any means in proportion to the increased number of successful ones.—(Squibb, *Ephemeris*.)

After the exhibition of sulphonal, a red pigment, haemato porphyrin, sometimes appears in the urine. This is a threatening symptom.—(Quincke, Schäffer, *Ther. Monatsh.*, June, 1893.)

Gonzales advocates the use of sulphonal in conjunction with morphin as a safe and very efficient combination (*Brit. Med. Journal [Epitome]*, Sept. 2, 1893). Kast (*Arch. f. exp. Path. u. Pharm.*, 31, i.), from a study of the published cases in which poisonous effects have followed the use of sulphonal for a prolonged period, gives the following as characteristics of the condition of chronic poisoning by the drug:—(1) Disturbances of digestion, as vomiting, diarrhoea, or constipation; (2) of the nervous system,

as ataxy and feebleness of the limbs often share in the pathological process—the most frequent accompaniment is muscular wasting, without disturbance of sensation or reflex action, and without the reaction of degeneration; (3) the atrophy and paralysis are not in relation to the duration or extent of the arthritic affection; (4) less frequently the atrophy is the result of an involvement of the nerves; (5) a quite satisfactory explanation cannot yet be given of this atrophy, but several factors may produce it; and (6) the prognosis is good, electrical and mechanical treatment being very useful, whereas anti-rheumatic remedies are without effect.—(*Brit. Med. Journal* [Epitome], Feb. 11, 1893.)

Trional and *Tetronal* are so called because they contain in their molecules respectively three and four ethyl groups. Common sulphonal contains only two ethyl groups, and might, therefore, be fitly called dional. They are all members of the organic class termed sulphones, and include the radical SO₂. All observers agree that both trional and tetronal are valuable and efficient hypnotics, and closely resemble sulphonal in action. Most of the observations during the past year refer to trional. The general impression left upon our mind is that they are useful substitutes for sulphonal, and sometimes succeed where it has failed (Raimondi, Mariottini). In practice we often find, and especially in the domain of neurotic remedies, that it is of great advantage to have the command of several remedies of the same class whereby we can successfully cope with the ever-varying conditions we meet with in our patients. Trional and tetronal act more quickly (half an hour) than sulphonal, and the sleep is not so enduring. Koppers (*Sep.-Abdr. aus der int. klin. Rundsch.*, 1893) places trional above sulphonal, chloralamid, and chloral, and points out that it is also valuable in diminishing night sweats. Boettiger (*Brit. Med. Journ.* [Epit.], Nov. 5, 1892), from an experience of 75 cases, essentially confirms the above opinion. The average dose of trional, for a man, is 1-2 grm., and it is administered in the same way as sulphonal. Beyer finds trional very useful in mental cases (*Sonder-Abd. aus dem Arch. f. Psych.*). Randa also endorses its value, and found trional to act admirably in three cases where chloral failed.—(*Sep.-Abdr. aus der intern. klin. Rundsch.*, 1893.)

Chloralamid (Chloral Formamid) continues to be used in about the same line of affections as a year ago, but its employment has become more general. Its purely hypnotic effects are still pronounced, and well recognised in the same class of cases as before

noted. Its more extended use shows that it has a much larger range of usefulness than its rivals, chloral, paraldehyde or sulphonal. Its marked characteristics, which are being more recognised and taken advantage of every day—first, of not requiring an increased dose after continued use; and second, of definitely establishing the *habit* of sleeping by its systematic use, so that the habit is well kept up after administration has been discontinued, are inestimable qualifications.

During the past year it has been found especially valuable in cardiac asthma, and renewed claims for its superiority in sea-sickness have been prominent, although not by any means conclusive.

It is true that there have been some disappointing results reported this year as well as last, but they are comparatively few, and we may very safely say in general that in chloralamid we continue to have a safe and reasonably reliable hypnotic.—(Squibb, *Ephemeris*.)

Chloralose ($C_8H_{11}ClO_6$), a new hypnotic, seems worthy of being carefully tested. The smallness of the dose—*viz.*, *three or four grains*—as a hypnotic is remarkable. It is given in water, capsules, or in pills. In water its taste is readily masked by peppermint.

Euphorin—*i.e.*, phenyl-urethane—has been reported upon by a number of writers. G. Cao (*Rif. Med.*, Nov. 18, 19, and 21, 1892) has collected the results obtained by various observers with euphorin, and has added some observed by himself. He thinks euphorin is destined to play an important part in therapeutics by its efficacy in a great variety of conditions, from its rapid action, and its freedom from unpleasant after-effects. It is recommended : (1) As an antifermentative and parasiticide more energetic than phenol (Giacosa, Belfanti, Curti). (2) As an antithermic, in which respect its action is more rapid and greater than that of antipyrin (Sansoni, Adler, Lépine, Oliva, Curti). (3) As a neuralgesic and analgesic—(*a*) in habitual hemicrania (Lépine, Adler, Stillé, Curti, Cao); (*b*) in supra-orbital neuralgia, sciatica, intercostal neuralgia, &c. (Adler, Sansoni); (*c*) in syphilitic pains of the limbs (Cao); (*d*) in orchitis, &c. (4) In both acute and chronic rheumatism, being in some cases superior to the salicylates (Sansoni, Adler, Cao). (5) As a substitute for iodoform in major as well as in minor surgery, being equally efficient, really antiseptic, and less toxic (Peroni, Bovero, Oliva, Bossi, Curti). (6) As a disinfectant and cicatrising agent, in bedsores, scalds, and other wounds. (7) In the various forms of herpes, as an anodyne and healing

agent. (8) In aphthous stomatitis. (9) In the treatment of venereal ulcers it is far preferable to iodoform, iodol, aristol, salicylic acid, resorcin, or chloral hydrate (Peroni, Bovero). (10) In various skin affections, especially those of parasitic origin, such as tinea, trichophyton, favus, &c.

Hypnal is a compound obtained by the mutual reaction of chloral and antipyrin. Further researches have shown that there are *several* combinations of chloral and antipyrin, one at least of which is physiologically inactive. Hence it happens that different preparations bearing the name hypnal were in the market, and therapeutical observation was thus seriously handicapped.

Herz has investigated the action of Filehne's hypnal, and finds it to be an efficient hypnotic. It usually acts within twenty to thirty minutes, and has the advantage of being *almost tasteless*. The dose for adults is from 1-3 grammes. It is easily prescribed as a 10 per cent. watery solution, along with some cordial, syrup, or tincture.—(*Ther. Monatsh.*, Marz, 1893.)

INDIAN MEDICAL SERVICE.

We are indebted to the Director-General of the Army Medical Department for this list of Surgeons on probation in Her Majesty's Indian Medical Service who were successful at both the London and Netley Examinations. The prizes are awarded for marks gained in the special subjects taught at the Army Medical School. The final positions of these gentlemen are determined by the marks gained in London added to those gained at Netley, and the combined numbers are accordingly shown in the list which follows:—

January 31st, 1894.			
		Combined Marks	Combined Marks
1. Lamb, G. ^a	- - -	5,634	7. Bennett, H. - - - 4,385
2. Burden, H. ^{b,c}	- - -	5,188	8. Harris, A. - - - 4,318
3. Leumann, B. H.	-	4,802	9. Berry, A. E. - - - 4,304
4. Fisher, J.	- - -	4,578	10. MacLeod, E. C. - - - 4,282
5. Peck, E. S.	- - -	4,479	11. Thomson, C. - - - 4,045
6. Evans, C. H.	- - -	4,419	12. Fraser, H. - - - 4,032

^a Gained the Herbert Prize of £20, with the Martin Memorial Gold Medal, the Parkes Memorial Bronze Medal, the Montefiore second Prize, and a Prize in Pathology presented by Professor A. E. Wright, M.D.

^b Gained the Montefiore Medal and Prize of 20 guineas, and the Prize in Clinical Medicine presented by Surgeon-General W. C. Maclean, C.B.

^c Gained the De Chaumont Prize in Hygiene.

PART IV. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—GEORGE H. KIDD, M.D., F.R.C.S.I.

General Secretary—W. THOMSON, F.R.C.S.I.

SECTION OF MEDICINE.

President—WALTER G. SMITH, M.D., President of the Royal College of Physicians of Ireland.

Sectional Secretary—A. N. MONTGOMERY, M.R.C.P.I.

Friday, December 15, 1893.

The PRESIDENT in the Chair.

A Case of Malignant Endocarditis.

DR. BURGESS read a paper on a case of malignant endocarditis in a married lady, aged thirty, six months pregnant. The chief interest lay in the obscurity of the case from the first, and likewise that it differed from the description of recorded cases from its symptoms. The prominent symptoms were pain of a lightning character, shooting in paroxysms from the inside of the knee to the base of the abdomen, and a fixed pain at the symphysis; also, after a time, paralysis of the bladder. The temperature was 101°, and a murmur was apparent from the first in the mitral valves, substituted in character. Miscarriage took place on the 7th day, but as the sequela gave rise to no fresh symptoms, it was not regarded as a complication. On the 18th embolism of the left cerebral artery occurred, followed by rapidly-increasing coma and death on the 20th day.

The remarkable points were—1. Murmur, which was present from the first, with an absence of any previous history of rheumatism. 2. The

nervous phenomena, which were the distinct feature. 3. The temperature, which was of the continuous type. 4. Its already alluded-to difference from the ordinary forms of pyæmia—cerebral, cardiac, or septic. 5. No occurrence of embolism took place until the 18th day, and there were no signs of renal or splenic embolism the whole time. 6. The peculiar absence of sweating.

The treatment was symptomatic.

DR. TWEEDY remarked that, as Dr. Burgess stated that he and Dr. Nixon at first considered the case one of hysteria, he wished to mention a case which he saw many years ago, and which he at first imagined to be one of hysteria, and which afterwards proved to be one of meningitis, as illustrating the difficulty that frequently existed in making an early diagnosis with accuracy.

DR. J. W. MOORE said that he had seen a case of a young married woman who was suddenly seized with febrile symptoms and rheumatoid pains. There was a systolic murmur; the temperature was high and variable, and there was extreme prostration. He and Dr. O'Carroll at first considered it to be a case of malignant endocarditis, but the patient subsequently got quite well, although for a fortnight her life appeared to be hanging in the balance.

A Case of Thrombosis of the Portal System.

THE PRESIDENT related the case of a young man, aged thirty, who sought advice at hospital on account of cramps in the stomach and lightness in the head, attended with shivering fits. He was anaemic; the legs were swelled, but there was no albumen in the urine, either then or subsequently. Some months later he was admitted into hospital for severe abdominal pain, which had set in 18 days previously. He was very weak, and suffered from dry retching. His colour was sallow yellow; no leucocytosis. The abdomen was tensely distended and very tender. It was dull at lower part and sides, and fluctuation could be detected. No enlargement of the cutaneous veins. A systolic murmur was heard over the heart, at base and apex. The bowels were loose—four or five pasty motions in a day—and there was moderate pyrexia. He steadily became worse, and died in collapse, after a week's stay in hospital.

Post-mortem.—Liver normal in size, very hard and tough. Nodular cirrhosis, especially on under surface of left lobe. Gall bladder flaccid. About two and a half quarts of thin serous fluid escaped from peritoneum. Spleen enlarged and firm. Portal vein adherent to structures in transverse fissure. It was much dilated, and its coats thick (about 3 mm.) and leathery—not calcified. Its interior was occupied by a firm yellowish granular thrombus adherent at one side to the veins but not completely obstructing its lumen. Branches of portal vein through the liver filled with soft thrombi, closely fitting, and yet capable of being withdrawn.

Mesenteric veins occluded by soft red thrombi. The jejunum, for about one foot, was adherent to ascending colon by soft recent lymph. There was acute recent peritonitis over liver and over this portion of the bowel, which was intensely congested, and nearly black, resembling a strangulated intestine. No blood in its interior; mucous membrane eroded. The walls of the rest of the small intestine much thickened by oedematous swelling. Several veins near pyloric end of stomach firmly thrombosed. Pleural adhesions existed on each side, and there was effusion into the right pleural cavity. The probable order of events was—(a) cirrhosis of liver, (b) thrombosis of portal vein, (c) sudden extension of thrombosis to gastric and mesenteric veins, (d) peritonitis.

DR. TWEEDY said that at present there was under his care a woman suffering from ascites. Laparotomy had been performed three months previously. She has been tapped eight or nine times within the last three months, and last time he drew off more than 400 ounces of fluid. In the absence of any evidence of hepatic or other disease likely to cause the ascites, he made a provisional diagnosis of adhesive pylephlebitis.

DR. BEWLEY said he had seen two cases of thrombosis of the portal vein. In one, the patient suffered from cirrhosis of the liver and dropsy, and also a good deal of abdominal pain. An autopsy revealed a rather soft clot in the portal vein without any involvement of the mesenteric veins. The second case was that of a man suffering from vomiting, pain, and distension of the abdomen. The bowels were obstinately constipated and a laparotomy was performed. About one foot of the small intestine was found to be in much the same condition as in Dr. Smith's case. There did not seem to be obstruction to the passage of matter through it. The man died shortly afterwards, and at the *post-mortem* it was found that the mesenteric and portal veins were thrombosed, as well as some of the deeper veins of the abdominal wall, where the laparotomy incision was made.

The PRESIDENT replied.

The Section then adjourned.

TWO LADIES' ROUND THE WORLD TRIP.

Two young ladies of Dundee—Miss F. Marie Imandt and Miss Bessie Maxwell—have started on a journey round the world. They are sent by the proprietors of the *Dundee Courier* and the *Dundee Weekly News* for the purpose of gleaning information as to the conditions of female labour in various countries.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, B.A., M.D., Univ. Dubl.; F.R.C.P.I.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

VITAL STATISTICS

For four Weeks ending Saturday, January 27, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Jan. 6	Jan. 13	Jan. 20	Jan. 27		Jan. 6	Jan. 13	Jan. 20	Jan. 27
Armagh -	28·0	49·1	35·1	35·1	Limerick -	22·5	25·3	23·9	23·1
Belfast -	27·4	36·6	32·5	28·8	Lisburn -	17·0	25·7	34·1	21·3
Cork -	39·4	34·6	33·2	43·6	Londonderry	17·8	28·3	15·7	15·7
Drogheda	35·1	52·7	52·7	17·6	Lurgan -	31·9	4·6	18·7	23·8
Dublin -	26·1	41·5	30·0	31·9	Newry -	30·2	36·2	44·8	16·1
Dundalk -	16·8	20·9	29·3	8·4	Sligo -	20·3	15·2	40·6	25·4
Galway -	7·6	18·9	30·2	60·5	Waterford -	27·5	45·0	20·0	30·0
Kilkenny	28·6	33·0	37·8	28·3	Wexford -	36·1	36·1	54·2	45·2

In the week ending Saturday, January 6, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 24·5), was equal to an average annual death-rate of 22·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·5 per 1,000. In Glasgow the rate was 22·6, and in Edinburgh it was 20·2.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 27·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·8 per 1,000, the rates varying from 0·0 in ten of the districts to 4·4 in Belfast and Drogheda—the 142 deaths from all causes registered in Belfast comprising 13 from measles, 5 from whooping-cough, 1 from diphtheria, 1 from enteric fever, and

3 from diarrhoea; and the 8 deaths in Drogheda including 6 from whooping-cough. Among the 57 deaths from all causes registered in Cork are 3 from measles. The Assistant-Registrar of Cork No. 5 District remarks : "Measles is very prevalent."

In the Dublin Registration District the registered births amounted to 171—85 boys and 86 girls; and the registered deaths to 182—85 males and 97 females.

The deaths, which are 39 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·1 in every 1,000 of the population, or 5·9 under the mean rate for the first week of the ten years 1884—1893. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 26·1 per 1,000.

The number of deaths from zymotic diseases registered was 24, being 2 over the average for the 1st week of the last ten years, but 16 under the number for the week ended December 30, 1893. The 24 deaths comprise 3 from measles, 1 from scarlet fever (scarlatina), 7 from influenza and its complications, 5 from whooping-cough, 2 from enteric fever, 2 from dysentery, and 1 from erysipelas.

Only 4 cases of enteric fever were admitted to hospital, against 14 admissions in the preceding week. Fourteen enteric fever patients were discharged, 1 died, and 65 remained under treatment on Saturday, being 11 under the number in hospital on Saturday, December 30.

The number of cases of scarlatina admitted to hospital was 12, being an increase of 3 as compared with the admissions for the preceding week. Four patients were discharged and 101 remained under treatment on Saturday, being 8 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 11 cases of measles (being 17 under the number for the preceding week) and 2 of typhus: 52 cases of the former and 8 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 48, being 11 below the average for the corresponding week of the ten years 1884—1893, and 8 under the number for the week ended December 30. The 48 deaths comprise 29 from bronchitis and 14 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 13, the mortality in thirty-three large English towns, including London (in which the rate was 29·5), was equal to an average annual death-rate of 28·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 23·8 per 1,000. In Glasgow the rate was 24·4, and in Edinburgh it was 21·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 36·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·4 per 1,000, the rates varying from 0·0 in nine of the districts to 6·6 in Belfast and 7·0 in Armagh—the 189 deaths from all causes registered in Belfast comprising 13 from measles, 2 from scarlatina, 10 from whooping-cough, 1 from diphtheria, 4 from enteric fever, and 4 from diarrhoea; and the 7 deaths in Armagh comprising 4 from scarlatina. The Assistant-Registrar of the latter district reports the occurrence of 2 deaths from influenza.

In the Dublin Registration District the registered births amounted to 211—112 boys and 99 girls; and the registered deaths to 285—132 males and 153 females.

The deaths, which are 47 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 42·5 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 41·5 per 1,000. During the first two weeks of the current year the death-rate averaged 34·8, and was 0·5 over the mean rate in the corresponding period of the ten years 1884-1893.

Thirty-seven deaths from zymotic diseases were registered, against 24 for the preceding week and an average of 28 for the second week of the last ten years. They comprise 7 from measles, 1 from typhus, 7 from influenza and its complications, 6 from whooping-cough, 1 from ill-defined fever, 2 from enteric fever, 1 from diarrhoea, and 3 from dysentery.

Ten cases of enteric fever were admitted to hospital, being 6 in excess of the admissions for the preceding week, but 4 under the number for the week ended December 30. Thirteen enteric fever patients were discharged and 62 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

Sixteen cases of scarlatina were admitted to hospital against 12 admissions for the preceding week, and 9 for the week ended December 30. Twenty-three patients were discharged and 94 remained under treatment on Saturday, being 7 under the number in hospital on Saturday, January 6.

The hospital admissions for the week included, also, 9 cases of measles (being 2 under the number for the preceding week) and 2 of typhus: 36 cases of measles and 6 of typhus remained under treatment in hospital on Saturday.

Eighty-one deaths from diseases of the respiratory system were registered, being 13 in excess of the average for the corresponding week of the last ten years, and 33 over the number for the week ended January 6. They comprise 56 from bronchitis and 18 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 20, the mortality in thirty-three large English towns, including London (in which the rate was 23·7), was equal to an average annual death-rate of 23·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·6 per 1,000. In Glasgow the rate was 22·0, and in Edinburgh it was 19·8.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 30·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·5 per 1,000, the rates varying from 0·0 in six of the districts to 12·6 in Dundalk—the 7 deaths from all causes registered in that district comprising 1 from scarlatina and 2 from diphtheria. Among the 168 deaths from all causes registered in Belfast are 11 from measles, 5 from whooping-cough, 2 from diphtheria, 3 from enteric fever, and 1 from diarrhoea. The 48 deaths in Cork comprise one from each of the following diseases: measles, simple continued fever, enteric fever, and diarrhoea. The 8 deaths in Lisburn comprise 2 from whooping-cough. The Assistant-Registrar of Armagh district reports the occurrence of another death from influenza.

In the Dublin Registration District the registered births amounted to 206—116 boys and 90 girls; and the registered deaths to 207—99 males and 108 females.

The deaths, which are 32 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·9 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 30·0 per 1,000. During the first three weeks of the current year the death-rate averaged 33·5, and was 1·3 under the mean rate in the corresponding period of the ten years 1884–1893.

Forty deaths from zymotic diseases were registered, being 3 over the number for the preceding week and 13 in excess of the average for the third week of the last ten years. They comprise 3 from measles, 9 from influenza and its complications, 12 (including 4 in No. 1 South City—South Earl-street—District, and 3 in Kingstown) from whooping-cough, 1 from diphtheria, 5 from enteric fever, 4 from diarrhoea, and 1 from erysipelas.

Eleven cases of enteric fever were admitted to hospital, being 1 over the admissions for the preceding week: 13 enteric fever patients were discharged and 60 remained under treatment on Saturday, being 2 under the number in hospital at the close of the preceding week.

Only 5 cases of scarlatina were admitted to hospital against 16 in the preceding week, and 12 in the week ended January 6. Eleven patients were discharged, 1 patient died, and 87 remained under treatment on Saturday, being 7 under the number in hospital on Saturday, January 13.

The hospital admissions for the week included, also, 2 cases of measles (being 7 under the number for the preceding week) and 4 of typhus: 24 cases of measles and 6 of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 53, being 17 below the average for the corresponding week of the last ten years, and 28 under the number for the week ended January 13. The 53 deaths comprise 37 from bronchitis and 12 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 27, the mortality in thirty-three large English towns, including London (in which the rate was 19.8), was equal to an average annual death-rate of 20.7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21.0 per 1,000. In Glasgow the rate was 22.3, and in Edinburgh it was 18.3.

The average annual death-rate in the sixteen principal town districts of Ireland was 30.5 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 3.1 per 1,000, the rates varying from 0.0 in seven of the districts to 11.8 in Galway—the 16 deaths from all causes registered in that district comprising 2 from whooping-cough and 1 from diarrhoea. Among the 146 deaths from all causes registered in Belfast are 9 from measles, 2 from scarlatina, 7 from whooping-cough, and 1 from diphtheria. The 63 deaths in Cork comprise 1 from measles and 2 from diarrhoea. The Assistant-Registrar of Armagh reports the occurrence of another death from influenza; and the Registrar of Lisburn District remarks:—“Pertussis (whooping-cough) very prevalent.”

In the Dublin Registration District the registered births amounted to 192—98 boys and 99 girls; and the registered deaths to 217—100 males and 117 females.

The deaths, which are 8 under the average number for the corresponding week of the last ten years, represent an annual rate of 32.3 in every 1,000 of the population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 31.9 per 1,000. During the first four weeks of the current year the death-rate averaged 33.2, and was 1.3 under the mean rate for the corresponding period of the ten years 1884–1893.

The deaths from zymotic diseases registered amounted to 42, being 2 over the number for the preceding week and 18 in excess of the average for the fourth week of the last ten years. They comprise 1 from chicken pox, 3 from measles, 2 from scarlet fever (scarlatina), 1 from typhus, 9

from influenza and its complications, 11 from whooping-cough, 2 from diphtheria, 1 from simple continued fever, 2 from enteric fever, 1 from diarrhoea, and 2 from erysipelas.

Sixteen cases of enteric fever were admitted to hospital, being 5 over the admissions for the preceding week: 16 enteric fever patients were discharged, 2 died, and 58 remained under treatment on Saturday, being 2 under the number in hospital on Saturday, January 20.

The number of cases of scarlatina admitted to hospital was 13, being an increase of 8 as compared with the admissions for the preceding week: 32 patients were discharged and 68 remained under treatment on Saturday, being 19 under the number in hospital on Saturday, January 20.

The hospital admissions for the week included, also, 7 cases of measles (against 2 for the preceding week) and 1 of typhus: 17 cases of the former and 5 of the latter disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had fallen from 81 for the week ended January 13 to 53 in the following week, further declined to 48, or 14 below the average for the corresponding week of the last ten years. The 48 deaths comprise 33 from bronchitis, 7 from pneumonia or inflammation of the lungs, and 3 from croup.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of January, 1894.

Mean Height of Barometer,	-	-	-	29·718 inches.
Maximal Height of Barometer (on 3rd, at 9 a.m.),	-	-	30·619	"
Minimal Height of Barometer (on 81st, at 2 p.m.),	-	-	29·140	"
Mean Dry-bulb Temperature,	-	-	-	40·1°.
Mean Wet-bulb Temperature,	-	-	-	38·0°
Mean Dew-point Temperature,	-	-	-	34·8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	.209 inch.
Mean Humidity,	-	-	-	82·1 per cent.
Highest Temperature in Shade (on 11th),	-	-	-	54·7°.
Lowest Temperature in Shade (on 7th),	-	-	-	18·6°.
Lowest Temperature on Grass (Radiation) (on 6th)	-	-	-	15·6°.
Mean Amount of Cloud,	-	-	-	52·8 per cent.
Rainfall (on 23 days),	-	-	-	2·838 inches.
Greatest Daily Rainfall (on 12th),	-	-	-	.334 inch.
General Directions of Wind,	-	-	-	S.W., W.S.W., W,

Remarks.

Opening with a spell of easterly winds and intensely cold weather, this month ultimately proved wet, open, and stormy, with an almost uninterrupted prevalence of south-westerly and westerly winds. The cold of the first few days of the month was produced in connection with an anticyclone which formed over Central Europe towards the close of December, aided by a down-rush of polar air in the rear of a deep cyclonic system which travelled eastwards across the extreme north of Russia on the 1st and 2nd. The intensity of the frost on the night of the 5th was very great in the inland parts of both England and Ireland. Even at Valentia Island the thermometer sank to 20° in the screen.

In Dublin the arithmetical mean temperature (41.0°) was slightly below the average (41.4°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 40.1° . In the twenty-nine years ending with 1893, January was coldest in 1881 (M. T. = 32.2°), and warmest in 1875 (M. T. = 46.6°). In 1867, the M. T. was 35.7° , and in 1865 it was 37.8° . In 1871 and in 1886 the M. T. was 37.9° ; in 1879 (the "cold year") it was 35.3° . In 1888 the M.T. was 42.1° ; in 1889, 42.4° ; in 1890, 44.5° ; in 1891, 40.1° ; in 1892, 38.8° ; and in 1893, 40.8° . As a general rule, January in Dublin is not colder, but a shade warmer, than December. This is owing to the full development in January of a winter area of low pressure over the Atlantic, to the northwestward of the British Isles, and to a resulting prevalence of S.W. winds in their vicinity. January, 1894, proved an exception to this rule, the M.T. being 2.5° below that of December, 1893 (43.5°).

The mean height of the barometer was 29.718 inches, or 0.156 inch below the corrected average value for January—namely, 29.874 inches. The mercury rose to 30.619 inches at 9 a.m. of the 3rd, and fell to 29.140 inches at 2 p.m. of the 31st. The observed range of atmospheric pressure was, therefore, as much as 1.479 inches—that is, a little less than one inch and a half.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 40.1° , or 2.7° below the value for December, 1893. Using the formula, $\text{Mean Temp.} = \text{Min.} + (\text{max.} - \text{min.}) \times .52$, the M. T. becomes 41.2° , compared with a twenty-five years' average of 41.5° . The arithmetical mean of the maximal and minimal readings was 41.0° , compared with a twenty-five years' average of 41.4° . On the 11th the thermometer in the screen rose to 54.7° —wind, S.; on the 7th the temperature fell to 18.6° —wind, S.S.W. The minimum on the grass was 15.6° on the 6th.

The rainfall was 2.838 inches, distributed over 23 days. The average rainfall for January in the twenty-five years, 1865–89, inclusive, was

2·200 inches, and the average number of rainy days was 17·3. The rainfall, therefore, and the rainy days were both above the average. In 1877 the rainfall in January was very large—4·322 inches on 25 days; in 1869, also, 4·258 inches fell—on, however, only 18 days. On the other hand, in 1876, only 406 of an inch was measured on but 9 days; and in 1880 the rainfall was only 563 of an inch on but 8 days. In January, 1886, 8·244 inches of rain were measured on as many as 26 days; in 1887 (the "dry year"), 1·816 inches fell on 16 days; in 1888, 1·247 inches on 9 days; in 1889, 2·213 inches on 16 days; in 1890, 2·975 inches on 21 days; in 1891, only 672 of an inch on 14 days; in 1892, 1·698 inches on 20 days, and in 1893, 2·239 inches on 19 days.

Lunar coronae were seen on the 16th and 17th. The atmosphere was foggy on the 6th, 7th, and 14th. High winds were noted on no less than 21 days, reaching the force of a gale on 9 days—the 4th, 5th, 8th, 12th, 20th, 27th, 28th, 29th, and 30th. Hail fell on the 2nd, 4th, 22nd, 25th, 27th, 28th, and 29th, and snow or sleet on the 3rd, 4th, 5th, 6th, 28th, 30th, and 31st. Temperature exceeded 50° in the screen on 13 days, compared with 7 days in 1893, 6 days in 1892, only 5 days in 1891, 17 days in 1890, and 8 days in 1889; while it fell to or below 32° in the screen on only 7 nights, compared with 4 nights in 1893, 15 nights in 1892, 7 nights in 1891, 1 night in 1890, and 3 nights in 1889. The minima on the grass were 32°, or less, on 17 nights, compared with 16 nights in 1893, 25 nights in 1892, 21 nights in 1891, 15 nights in 1890, and 16 nights in 1889. Lightning was seen on the evening of the 7th.

As in 1893, weather of unusual severity held over the greater part of Europe throughout the opening period of the year, January 1–6. Rough easterly winds, low temperatures, and frost and snow took the place of the stormy southwesterly winds, rains and mild temperatures which characterised all but the closing days of December, 1893. Sunday (December 31) was a damp, foggy, very cold day in Dublin. Open weather prevailed in the N., severe cold in the S. An anticyclone had its centre over the southern half of Ireland, the barometer reading 30·63 inches at 8 a.m. at Parsonstown. A deep depression was at the same moment travelling eastwards across the north of Russia, the barometer being as low as 28·60 inches in that region. In the rear of the depression over Northern Russia the barometer rose with great rapidity, so that at 8 a.m. of Wednesday, the 3rd, the reading at Færder, near Christiania in Norway, is stated to have been 31·07 inches. At this time atmospheric pressure was low in the Mediterranean basin (29·60 inches at Nice): consequently a strong and bitterly cold easterly wind began to blow over Germany, France, and the southern part of the British Islands. The result was a spell of truly Siberian cold. At 8 a.m. of Friday the thermometer read 14° in London. In Dublin a strong easterly gale had

prevailed during the previous night, and at 11 a.m. a heavy snowstorm set in with a temperature of 27°. This was renewed in the evening, and Saturday broke with an intense frost, 20° being the temperature at 9 a.m. The thermometer had fallen to 8·6° at the Ordnance Survey Office, Phoenix Park, during the previous night. A fine snow or frozen aqueous vapour fell lightly for several hours on this day, while the clouds came from S. and S.W. In Dublin the mean height of the barometer during the week was 30·283 inches, pressure ranging from 30·619 inches at 9 a.m. of Wednesday, the 3rd (wind, E.) to 29·543 inches at 3 p.m. of Saturday (wind, calm). The corrected mean temperature was 34·0°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 32·7°. On Monday the thermometers rose to 43·6° in the screen, on Saturday they fell to 19·8°. The rainfall was ·179 inch on three days, ·151 inch falling as snow on Friday. Easterly winds prevailed. At 11 p.m. of Saturday the thermometer fell to 18·6° in the screen. On Friday night the lowest minima were 5° at Loughborough, 6° at Parsonstown and Armagh, and 10° at York. At Worksop, in Notts, a minimum of -4·4° was recorded.

Remarkable changes in the weather were experienced in Western Europe in the course of the week ended Saturday, the 18th, warmth and rain taking the place of bitter cold and snow. On the other hand, continuous frost held in Germany, Austria, and Russia, where also the distribution of atmospheric pressure remained anticyclonic throughout, the barometer ranging from 30·60 to 30·80 inches and upwards over Russia. At the beginning of the week gradients for S.W. and S. winds were already forming over the British Islands. On Monday these became steep, and during the remainder of the period depression after depression passed in quick succession northwards outside our western coasts, causing gales in the west and north of the United Kingdom, with heavy rains from time to time in all districts. At the same time, many fine, bright intervals were enjoyed. But the most striking feature in the week's weather was the extraordinary rise of temperature which accompanied the establishment of the S. and S.W. winds. On Sunday morning severe frost prevailed everywhere, except at the west-coast stations both in Great Britain and in Ireland. At Aberdeen the temperature at 8 a.m. was only 14°. By Monday morning the thaw had become general in Ireland, but hard frost still held in the centre and east of Great Britain. At 8 a.m. the thermometer read 17° at Shields. On Tuesday morning no frost was reported from any British station. The temperature now rose day by day until Thursday, when maxima of 57° at Loughborough, 55° at Laird and in Dublin, and 54° at Oxford, were recorded. Thunder and lightning occurred on Sunday at Valentia Island in Kerry and lightning was seen at Prawle Point and Holyhead as well as from Dublin. In this city the mean atmospheric pressure was 29·600 inches, the barometer rising to 29·890 inches at 9 p.m. of Sunday (wind, S.S.W.).

and falling to 29.385 inches at 9 p.m. of Wednesday (wind also S.S.W.). The corrected mean temperature was 43.6°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 43.4°. On Sunday the thermometers in the screen fell to 18.6°, on Thursday they rose to 54.7°. The rainfall was 1.055 inches on six days, .834 inch being measured on Friday. Southerly (S.E. to S.W.) winds prevailed throughout. In Dublin the thermometer stood 30° higher on Saturday morning than it had stood that day week.

Except on Sunday, which was a fine, quiet, bright day in Ireland, but very wet in England, the weather during the week ended Saturday, the 20th, was very disturbed—open, squally, and rainy, but with bright intervals. Even in Germany the frost broke up on Monday, and considerable falls of rain occurred from time to time. The fine weather in Ireland was brought about by the presence of small subsidiary areas of low pressure (secondary depressions) over Wales, England, and Brittany. The effect of these was to equalise pressure over Ireland, so that the wind fell light and the sky cleared. On Monday these systems had passed away and a new primary depression approached Ireland from S.W., causing fresh southerly winds and rain. Several areas of low pressure subsequently passed northeastwards along the western shores of the British Islands, keeping the weather unsettled with frequent rain and squally S.W., W., and N.W. winds. On Wednesday night the barometer sank below 29 inches over the North of Scotland, and on Saturday morning pressure was as low as 28.72 inches at Wick. A moderate W.S.W. gale prevailed for some hours on this day, and rain fell in plentiful showers. In Dublin the mean atmospheric pressure during the week was only 29.569 inches, the barometer being observed to range between 29.887 inches at 9 p.m. of Sunday (wind, W.N.W.), and 29.186 inches at 9 a.m. of Saturday (wind, W.S.W.). The corrected mean temperature was 45.9°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 44.4°. On Tuesday the screened thermometers rose to 53.5°; on Monday they fell to 36.3°. Rain was measured on five days to the amount of .533 inch, the maximal fall in 24 hours being .183 inch on Friday. The prevalent wind was W.S.W.

The westerly type of weather still held over Western Europe throughout the week ended Saturday, the 27th. Several deep depressions passed northeastwards across the Norwegian Sea, while their secondaries traversed the British Islands and the adjoining seas. In consequence of this unsettled state of atmospheric pressure, the weather remained in an exceedingly broken, rough, and rainy condition, and changes of temperature were both sudden and extreme. At 8 a.m. of Sunday the barometer was down to 28.67 inches at Bodö in the north-west of Norway, but as high as 30.32 inches at Biarritz, and 30.40 inches at Lisbon. Strong W.S.W. winds, cloudy skies, and open weather prevailed, and in the afternoon rain fell heavily for a time in Ireland. Monday was colder

and brighter, with showers of cold rain and hail. Tuesday was fair and frosty, but at night a new break in the weather began in Ireland, whereas the frost became sharp in England. On this night the screened thermometer fell to 23° at Loughborough and Cambridge, and to 24° in London. This frost was of short duration, for within 24 hours temperature had risen 20° over the centre and S.E. of England, and warm S.W. winds were again sweeping all over the country. A sudden chill on Thursday evening covered the Dublin mountains with snow, but this had all disappeared by Friday afternoon. A fresh to strong gale from W.S.W. followed, and rain fell heavily at times on Saturday. In Dublin the mean atmospheric pressure was 29.670 inches, the barometer ranging between 30.121 inches at 9 p.m. of Tuesday (wind, S.W.), and 29.306 inches at 2 p.m. of Saturday (wind, W.S.W.). The corrected mean temperature was 42.0° . The mean dry bulb temperature at 9 a.m. and 9 p.m. was 41.3° . On Saturday the screened thermometers rose to 52.3° , on Tuesday they fell to 31.0° . Rainfall was measured on five days, the total amount being .530 inch, of which .280 inch fell on Saturday. The prevalent wind was once more W.S.W.

During the last four days of the month the weather remained in the unsettled, stormy condition which proved so characteristic of January, 1894. At 8 a.m. of Sunday, the 28th, the barometer was down to 28.11 inches at Bodø in Norway, while it stood as high as 30.40 inches at Lisbon. Gradients for westerly winds were very steep over the British Islands. Needless to say the weather was rough and inclement. Snow showers fell in the morning, and sleet and rain in the evening in Dublin. On Monday, the 29th, another large depression came in from the Atlantic, reaching the Shetlands on Tuesday morning. On the evening of the 30th a heavy fall of wet snow occurred in Dublin, and the last day of the month was very severe—snow-showers at midday being followed by a thaw in the afternoon.

In Dublin the rainfall up to January 31, 1894, amounted to 2.838 inches on 23 days, compared with a twenty-five years' average (1865-1889) of 2.200 inches on 17.3 days.

At Knockdolian, Greystones, Co. Wicklow, 4.390 inches of rain fell on 24 days. The heaviest falls in 24 hours were .630 inch on the 8th, and again on the 10th, and .450 inch on the 15th.

At Fassaroe, Bray, Co. Wicklow, 5.075 inches fell on 22 days.

At Cloneevin, Killiney, Co. Dublin, the rainfall was 3.260 inches on 23 days, .550 inch being measured on the 12th. This was the highest rainfall recorded at this station in January during the past 10 years. The average fall for the preceding 9 years was 1.880 inches on 15 days.

PERISCOPE.

ABSTRACTS OF GYNAECOLOGICAL AND MIDWIFERY PAPERS.

1. DR. CHARLES NOBLE (*American Journal of Obstetrics, &c.*, on Diseases of Women, &c., Dec., 1893), deals with the relation of certain urinary conditions to gynaecological surgery. His conclusions are summed up as follows:—1. A systematic examination of the urine of gynaecological patients, especially those requiring coeliotomy, should be made. 2. That the presence of albumin, and even casts, in the urine, need not affect the issue of the operation. 3. That serious and prolonged coeliotomies, involving much handling of the abdominal viscera, in women having chronic Bright's disease (especially the small contracted kidney) usually terminate fatally. 4. That the prognosis is best when the presence of albumin and casts in the urine is due to the pressure of an ovarian cyst, which can be quickly removed.

2. DR. HIRAM M. VINEBERG contributes a paper to the January number of the *New York Journal of Obstetrics and Gynaecology*, describing Mackenrodt's new operation for the cure of retroflexion. He says—"The patient is placed in the lithotomy position, and the vagina and vulva are thoroughly scrubbed. I invariably precede the operation by a curettage, for, even if no endometritis be present—which is unlikely—it is well to have a clean aseptic cavity in the event of the needle, in suturing the uterus, going through the whole thickness of the uterine wall. The value of doing a curettage before any operation, during which the uterine cavity may be entered, has been fully taught us by Dr. Edenbohl. If there be present a pathological laceration of the cervix, this is next repaired, or an amputation done, if the condition seems to demand it. The first step of the operation consists in seizing the anterior lip of the cervix with two vulsellæ, and drawing the cervix downward to the vulva, or outside of it, if this can be done without employing unnecessary force. The anterior vaginal wall, about three quarters or one inch from the urethral opening, is caught with another vulsellæ and drawn upward. In this way the wall of the vagina is put on the stretch. Then a longitudinal incision is made in the median line, through the anterior vaginal wall, extending from one inch below the urethral opening to the vaginal attachment of the cervix. The vaginal wall is now separated on either side from the underlying bladder, partly by sharp and partly by dull dissection. The haemorrhage attending this part of the operation may be not inconsiderable, and comes from the vaginal branches of the uterine artery. The next step consists in holding asunder the two vaginal flaps by tenacula at the lower angle of the wound, and making a slight curved

incision with the convexity towards the cervix down upon the cervical tissue. This incision is made in the already denuded surface, and cuts through the vesico-vaginal septum. Before making it, it is well to ascertain the extent to which the bladder is adherent to the cervix, so as to avoid cutting into it. The bladder is then separated from the cervix and pushed back with the finger, as is done in vaginal hysterectomy, and may be carried to the upper angle of the wound, where it can be held with an ordinary vaginal depressor. A thick sound, with a knob at the end, is now passed into the uterus, and the uterus is anteverted, so that its anterior wall presents in the vaginal wound. The next step consists in resecting a strip from each flap in cases of prolapsus of the anterior wall. The width of the resected strips is made to depend upon the degree of prolapsus and relaxation, and they together form a strip of an oval shape. Then, with a stout curved needle a silk suture is passed through the right vaginal flap at the extreme upper end of the incision—that is, from three-quarters to one inch distant from the urethral opening, and about half an inch from the edge of the flap. The suture is then carried through the anterior wall of the uterus, quite near to the fundus, then out through the left vaginal flap, at a corresponding point to that of the opposite side. A second suture is passed in the same way about half an inch below the first. The sutures are now tied firmly, and the vaginal flaps are brought together by a continuous catgut or silk suture. A couple of interrupted sutures may be passed to strengthen the line of coaptation. The lower stitches are made to catch up the cervix to avoid any pocketing. If there be any prolapsus of the posterior wall, or a laceration of the perineum, these are now attended to. The vagina is then packed lightly with iodoform gauze to absorb any oozing, and the patient is placed in bed. She is kept in bed for three weeks, the uterine sutures being removed at the end of the fifth or sixth week.

EXAMINATION OF CANDIDATES FOR HER MAJESTY'S ARMY AND INDIAN MEDICAL SERVICES.

THE following papers were set in August, 1893:—*Anatomy and Physiology.*—Mr. Makins.—Monday, 14th August, 1893—from 10 a.m. till 1 p.m.—[N.B.—The replies to be written with the INK provided, and not with a pencil or pale ink.]—1. Describe the course and relations of the internal jugular vein, what tributaries does it receive? Explain how the venous circulation is maintained when the right internal jugular is ligatured in the neck.—2. Describe the course and distribution of the external popliteal nerve and its various branches. What is the result of section of this nerve in the popliteal space?—3. Describe the course and relations of the oesophagus. At what points do variations in the lumen of the tube occur? What structures need division or separation in the incision made at the root of the neck for the operation of oesophago-

tomy?—4. Describe the arrangement of the lymphatic glands in the groin? What functions are ascribed to the lymphatic glands, and what are the sources and use of the lymphatic secretion?—[May we suggest that "œsophagus" and "œsophagotomy" are the correct spellings of these words.—ED. D. J. M. S.]

Surgery.—Sir William MacCormac.—Monday, 14th August, 1893—from 2 p.m. to 5 p.m.—*All four questions to be answered.*—1. Give the signs of subcoracoid dislocation of the humerus. Explain the causes of the occasional failure to diagnose the nature of the injury. What lesions occur to the joint and the structures surrounding it? State precisely the method of reduction by manipulation in a recent case, preferably that suggested by Professor Kocher.—2. Describe the pathological changes which take place in senile enlargement of the prostate. Describe and explain their effects upon the passage of urine from the bladder. Discuss fully the treatment of the disease.—3. What forms of injury to the eye are most liable to be followed by sympathetic ophthalmia? What structures are affected in this disease? Give the treatment you would adopt, as well as the indications which guide you in deciding upon it.—4. Enumerate the causes tending to produce a varicose condition in the veins of the lower extremity. What veins are affected, and what are the pathological changes which take place in them? Give your treatment, and state the indications for operative interference.

Medicine.—Dr. Allchin.—Tuesday, 15th August, 1893—from 10 a.m. till 1 p.m.—1. Comment on the following case with reference (a) to its diagnosis, pathology, and probable *post-mortem* appearances, indicating the relation of the latter to the symptoms; (b) to treatment:—O. H., aged thirty-one, was admitted to the hospital complaining of great weakness, with dyspnoea and palpitation on exertion. He states that he has suffered from shortness of breath for years, and that during the past few months this has much increased, and he has become very much weaker. He has never fainted. He has been occupied as a gardener in the country, and followed his work, which has never been laborious, up to a fortnight prior to admission. Has always lived well. Has had rheumatic fever four times, the first attack when a boy, the last five years ago. Has not had syphilis, nor has there been any alcoholic excess. On admission, the patient was found to exhibit no distress or pain when lying in bed, but became markedly dyspnoic on slight exertion. There was distinct wasting and considerable muscular weakness. Complexion sunburnt, with a yellow waxy tinge showing through; mucous membranes pale. No cyanosis, jaundice, or œdema. No pain, or swelling of joints. The skin was hot and dry, though perspiring at night; temperature 101·8° Fahr. Respirations 22; radial pulse, 102, full, compressible, not markedly collapsing; vessel firm. Arterial pulsation in the neck very pronounced, and distinctly visible in temporal and other superficial

arteries. Capillary pulsation easily obtained. A systolic thrill perceptible in the carotids. The precordium considerably bulged. Cardiac impulse diffused over the fourth, fifth, and sixth intercostal spaces on the left of the sternum; pulsation also visible in the second and third spaces of the right side. No distinct systolic recession. The point of maximum cardiac impulse was in the sixth interspace, half an inch outside the vertical nipple line; the impulse very forcible and heaving. At the base of the heart was to be heard a rough murmur replacing the first sound, and conducted to the second right cartilage; and the second sound was replaced by a loud prolonged murmur, audible over most of the cardiac area, but especially down the sternum; a soft systolic bruit was to be heard at the apex, conducted into the axilla. The breathing slightly quickened, but no loss of resonance over the lungs, and the breath sounds were normal, except for very occasional crackling râles. There was no ascites, and no increase in area of hepatic or splenic dulness. Urine acid, sp. gr. 1027, with a trace of albumen. The patient lived a month after admission to the hospital. During this time he became progressively weaker, until scarcely able to move. The temperature was always raised, but of an irregular type, ranging from 100° Fahr. to 103·6° Fahr., the highest point in the 24 hours being usually in the evening. Skin generally hot and dry; but at times somewhat profuse sweating occurred. Tongue dry and tremulous, and became increasingly so towards the end. The cardiac condition remained about the same as on admission, except that the impulse was less heaving in character, with a tendency to irregular and weak action. The inspiration became quicker and shallower, with râles more constantly present at the bases of the lungs, and a little expectoration of blood-stained mucus. A fortnight before he died he was seized with sharp pains over the left side, and there was some increase in the area of dulness over the region of the spleen. The urine usually contained a trace of albumen, and on several occasions blood. A week after admission there appeared an eruption of purpuric spots over the trunk, which lasted more or less distinctly for a fortnight, some of the spots being nearly half an inch in diameter. Two days before he died the patient passed his urine and motions under him.—
2. Describe the morbid state known as perityphlitis, also its etiology, symptoms, and treatment.—3. Describe the naked eye and microscopic changes found in the lungs in a case of tubercular phthisis.—4. Enumerate the symptoms which a case of alcoholic cirrhosis of the liver might present, and describe in full detail the treatment you would pursue.

Chemistry and Pharmacy.—Dr. Shore.—Tuesday, 15th August, 1893—from 2 p.m. till 4 p.m.—1. Describe fully experiments by which you can prove—(a.) That atmospheric air is a mixture and not a chemical compound. (b.) That its approximate composition by volume is O = 21, N = 79. (c.) That its composition by weight is about O = 23·14, N =

76·86.—2. Enunciate and explain the "periodic law" of Mendeléeff. Illustrate the scientific importance of this law.—3. Describe how ordinary ethylic alcohol can be synthetically prepared. Mention the chief products of the oxidation of ordinary alcohol, and show how they can be prepared from it.—4. Mention the alkaloids and organic acids contained in the cinchona barks. What are the tests for the more important alkaloids? Enumerate the official preparations made from the barks and their alkaloids.

Natural Sciences.—Dr. Shore.—Tuesday, 15th August, 1893—from 4 p.m. till 6 p.m.—*Zoology and Comparative Anatomy* :—1. Give a short account of the general structure and life-history of a star-fish.—2. Classify fishes. Briefly state the differences between the elasmo branch and the bony fishes. *Botany* :—3. Describe concisely what is meant by assimilation, respiration, and transpiration as applied to plants.—4. Give an account of the structure of the flower in each of the following natural orders:—*Leguminosæ*, *Compositæ*, *Labiatae*, and *Gramineæ*. *Physics and Physical Geography* :—5. Give an account of the principle of the conservation of energy, showing, by the aid of examples, exactly what is meant by it. Give definitions of the terms *dyne* and *erg*.—6. To what different kinds of movement is the crust of the earth subject? Give examples. Explain as far as you can the causes of the phenomena you describe.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Ophthalmic Tabloids and Apparatus.

MEASRS. BURROUGHS, WELLCOME, & CO., of Snow-hill Buildings, London, E.C., have submitted to our notice some ophthalmic "tabloids" and ophthalmic apparatus, which they have lately introduced.

The ophthalmic "tabloids" are extremely delicate in appearance, of the thickness of note paper, unchangeable in composition, stated to be absolutely reliable in any climate, very soluble and when placed upon the conjunctival surface are immediately dissolved in the lacrymal secretion and are diffused over the surface of the eye. In the case of those "tabloids" which contain cocaine in addition to the active constituent, it will be found that anaesthesia is readily obtained without in the least impairing the desired physiological effect. These ophthalmic "tabloids," with two exceptions, are intended to be inserted in the eyelid as they are, and this is a distinct advantage over the "drop" treatment, as the frequent installation of a solution is often distressing and irritating. Besides this, under some conditions, the constant introduction of a remedy is certainly injurious, since it disturbs the absolute rest which is such an important

element in the treatment, and in the case of children often causes alarm and resistance. It has also been pointed out that solutions when instilled into the conjunctival sac are only retained in small quantity, and that quantity becomes so much diluted with the lacrymal fluid as to utterly fail to produce any effect. We venture to think that these ophthalmic "tabloids" supply a long-felt want, and will be found of the utmost value to members of the medical profession all over the world. A list of the various formulæ at present made is supplied by the firm in a printed circular. The "tabloids" are supplied in tubes of 25 (excepting homatropin, of which there are only 12 in a tube), at six shillings per dozen tubes.

Ophthalmic Tabloid Holder.—This little instrument consists of a celluloid tube with a small india-rubber ball attached. The tube has a concave termination which is just large enough to hold a "tabloid." In using the holder the following directions must be observed:—The rubber ball must first of all be compressed and the end of the tube placed accurately over the "tabloid," so that it can be drawn into the concavity by relaxing the pressure of the finger upon the ball. The eyelid of the patient should then be everted with the forefinger of the left hand, and the "tabloid" gently dropped into the outer canthus. The price of the holder is eight pence.

Ophthalmic Case.—This is a small and compact case which can be comfortably carried in the waistcoat pocket, and contains a medicine dropper and camel hair brushes, a "tabloid" holder, a small glass mortar and pestle, and nine tubes of ophthalmic "tabloids," forming a complete equipment for the treatment of diseases and affections of the eye. The price of the case complete is seven shillings and sixpence.

Chromatic Dial for Testing Colour Vision.—This supplies a ready and reliable method of testing colour perception, which is far more easy of application than the old methods. The contrivance consists of two cardboard discs, six inches in diameter, so fastened on a central pin that one can be made to revolve upon the other. The test colours, red, pink, and green, are painted around perforations on the outer card, and through the apertures the confusion colours can successively be brought into comparison with them.

Test Types.—With the dial are supplied test types for ascertaining the acuteness of vision. The price of the chromatic dial and test types, in cardboard cases complete, is two shillings.

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APRIL 2, 1894.

PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*Sequel of a Case of Myxoedema treated by Thyroid Juice.** By JAMES LITTLE, M.D., Edin. (*et Dubl., honoris causa*); F.R.C.P.I.; Physician to the Adelaide Hospital; Ex-President, Royal College of Physicians of Ireland.

I suppose we may now accept as an established fact that the juice of the thyroid gland of the sheep, when obtained with all due precaution, and injected under the skin with similar care, removes the symptoms of myxoedema. It is not, I fear, yet certain that the cure is permanent, and we are not as yet sure whether the administration of the thyroid juice by the mouth is as efficacious as its injection beneath the skin. The present communication to the Academy is intended as a contribution to our knowledge on these points. I had the honour of reading to the Medical Section in April last the details of a case of myxoedema which I had treated by the hypodermic injection of thyroid juice. In consequence of negligence in forwarding the manuscript to the Secretary the paper did not appear in the Transactions, and I will therefore briefly recapitulate the facts:—

CASE.—On December 11th, 1890, Miss F., aged thirty-four, consulted me. In the autumn of 1886 she noticed that she had difficulty in kneeling; then her ankles became stiff, and when she walked they swelled.

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, March 2, 1894.

These discomforts continuing, she consulted a surgeon in July, 1887, and in the following October she went to Buxton, and, she thought, derived some benefit from her stay there.

When she came to me in December, 1890, she presented typically the symptoms and signs of myxædema. Her family noticed her indisposition to exertion and her silence; she herself said she felt stupid. Her entire body was larger than it had been, her neck fuller, and her abdomen so prominent that I was asked to examine her in bed, as her mother could not believe that her daughter did not suffer from a tumour. She needed collars and gloves larger than she had formerly required. Her face seemed swollen and had a mixed pale and livid look. Her fingers had become clumsy; she felt the cold terribly, and she was occasionally hoarse. Her tongue was large and pale, her appetite was good, but she often felt distended after food, and her bowels were confined. Menstruation was excessive, and in the intervals she suffered from leucorrhœa. Her pulse was sixty-eight, and the cardiac sounds short and sharp. There was no hum in the veins of the neck or in the pulmonary area. The disease appeared to be in a stationary condition, as the patient and her family had noticed no change for better or worse for two years. I advised the lady to take Turkish baths, and gave her tincture of jaborandi in half drachm doses thrice daily.

Eighteen months afterwards, in July, 1892, I saw her again. She had taken the jaborandi for twelve months. She had gone to the Turkish baths twice a week for five months, and afterwards at longer intervals. On the whole, she seemed a little better. She was less stupid and her face less swollen, but there was no material change. I then proposed to treat her by the thyroid juice, but as I was just leaving home it was agreed to postpone the course until the winter.

In November she came back. She had continued the Turkish baths, in which she perspired freely; she thought herself a little better, but her sister believed that this impression was due to the fact that the sufferer had become accustomed to her discomfort. She said she had a lumbering feel, as if her joints were stiff. She said she felt brighter, but activity was impossible owing to the stiffness of her body. The face was smooth, the nose and cheeks bright, the lips full and pale; she had a double chin, her fingers were big and dry and stiff; a ring which formerly fitted easily would not go on her finger; she had been obliged to get larger boots. Her breath was often offensive.

On December 4th I gave the first injection of thyroid juice, and I continued the administration until January 9th. She had altogether twenty-six injections; at first I gave two each week, but afterwards three. The fluid was kindly prepared for me by Dr. J. Alfred Scott with elaborate precaution. The weather at the time was very cold, and I avoided using any of the juice which had been kept longer than forty-

eight hours. The injection was made with one of the syringes with an asbestos washer, and I was careful to clean the syringe and thoroughly wash the skin with Jeyes' fluid before the operation. Except on one occasion, when I injected two syringefuls of the fluid, there never was the smallest local heat or feverish disturbance, and generally the lady got up and went about as usual an hour after my visit.

When making the first few injections I had difficulty in pinching up the skin, but towards the end of the course it could be caught up with ease, and the alteration in the entire appearance of the patient was very striking. She took part in conversation as she had not done for years, and felt lively and active. Her joints had become so supple that she could again use her needle with neatness. She no longer felt the cold with unnatural acuteness; her hands and feet were warm and her breath free from fester. Her face corresponded entirely with a photograph taken before she had fallen into bad health, and she told me that the black horny masses which had been on her knees disappeared during the treatment; and that on the head and nape of the neck, where her hair had become thin and poor, a new growth was appearing. I advised her to have a Turkish bath twice a week and to get herself well rubbed in it, and to take five minims of liquor strychniae twice daily after meals. In the beginning of March, however, just two months after I had discontinued the injections, her family noticed that some of the signs were reappearing; the face had become a little dry, pale, and puffed; and her voice a little hoarse; she felt shaky about the knees; her under-lip turned out in speaking; and the fulness of the abdomen, which had almost disappeared, was again observable. Under these circumstances I advised the lady to try the thyroid glands internally, and from this time up to the present she has been doing so. The butcher who supplies her family has learned how to remove the glands and sends them to her fresh. Each week she uses two glands—half a one, say, on Monday and Tuesday, and again half a one on Thursday and Friday; she chips up the half gland, cleared of fat and capsule, and putting it in a spoon moistens it with a little beaune and swallows it after breakfast. She has also taken the strychnine. She looks and feels in every way as well as before the myxoedema begun. Painting, which the clumsiness of her fingers had rendered impossible, she has recommenced, and finds she can use her brush as well as ever. She has a luxuriant head of hair, and instead of taking collars of $14\frac{1}{2}$ inches she now feels comfortable in those measuring $13\frac{1}{2}$, and wears boots a size smaller than she wore eighteen months ago. She has now gone to England, and, with my acquiescence, is to give up the treatment.

ART. XL.—*Andrew Vesalius.* By GEORGE MATHESON CULLEN,
M.D., M.Ch. Univ. Edin.

(Continued from page 232.)

THE wonderful success of the new method of teaching anatomy induced the neighbouring Universities of Bologna and Pisa to start it in their respective schools. And in order to give more *éclat* to the inauguration, and that their work might be done after the most approved manner, it was determined to ask Vesalius to conduct the demonstrations, and thus he came to be teacher in three universities in one year. But even this does not fully represent his labour, for his private work was enormous. Monkeys, tailed and tailless, birds, and most of the ordinary mammals, came under his scrutinising knife. In Bologna, he lived with his friend Prof. John Andrew Albio, and having dissected a monkey in his house, he went to the trouble of articulating the bones together, in order to make his host a present of the skeleton. Doctors invited him to *post-mortem* examinations on their patients, and his friends would often procure a body and listen far into the morning to the lucid explanations of the anatomist. Everywhere he went it was the same; the enthusiasts had a body ready for him, and he, most enthusiastic of all, would hardly pass a cemetery without looking into it and examining the bones within reach, noticing any peculiarity about them. And all this time he was preparing and writing his great work on Anatomy.

At last, in 1542, his book was written, and he betook himself early in 1543 to Bâle, in order to correct the proofs as they issued from the press. Even in this literary work he found time to lay anatomy under another debt to him, for he dissected a human body there, the first dissection ever performed in that town, and, having articulated the bones, he presented the skeleton to the University. In August, however, his Anatomy and its Epitome were published, and it is almost impossible to comprehend the wonder with which they were received. It is a sufficient guarantee of the reputation they instantly gained the author, that the Emperor immediately made him his physician. This was a post of the highest honour, and, clearer than anything else, showed the pinnacle of fame on which Vesalius was set. We may, however, with Haller, sorely grudge him the dignity which took him away from

anatomy.* But the separation was not yet, for after accompanying Charles V. in the Gueldric war he was allowed to return to Italy. It was not, however, to resume his Professorial chair that he went back, for that had been filled up on Jan. 19th, 1543,^b by the appointment to it of Realdu^cs Columbus. His time was spent going from university to university, showing by his dissections that what he had stated in his book was true. In this congenial occupation he remained till about the middle of 1544, when he joined the Emperor, then engaged in war with France, and from this time forward his life was spent almost entirely in attendance at Court; and, with the exception of a few *post-mortem* examinations, he was entirely drawn away from his loved anatomy. But the voice of his enemies had been growing louder, and their anger had waxed more venomous, and the climax was reached in a contemptible letter^e which Sylvius wrote. The personal element entered very largely into this epistle, as may be easily seen from the title, in which, by a mean-spirited pun, the name Vesanus (madman) is substituted for Vesalius. The following extract will illustrate the style:—“ You see, good and candid readers, that no solid learning is to be expected in this most verbose farrago of the calumniator (*i.e.*, Vesalins)—to seek for errors there is like looking for water in the ocean. . . . I implore his Imperial Majesty to take means that this monster of ignorance, this most hurtful example of ingratitude, pride and impiety . . . may be heavily punished, and by every possible means restrained, lest by his pestilent breath he poison the rest of Europe.”^f

It was only natural that Vesalius should take this much to heart. He had endeavoured to do his best for anatomy, and now he found his efforts minimised as to their good effects, and his work credited with an evil origin and disastrous influence. So dispirited was he that even before he joined the Emperor in 1544, he had determined to cut himself off for ever from the study which had repaid him so badly, and accordingly he burnt his copy of Galen, and his commentary on that master, as

* *Biblioteca Anatomica.* 2 vols. 4to. *Lugduni Batav.* 1774. Vol. I. pp. 180 to 187.

^b *Archives of Venetian Senate.* Quoted by Roth (Andreas Vesalius. P. 480.)

^c *Vesani Cujusdam Calumniarum in Hippocratis Galenique rem Anatomicam Depulsio per Jacobum Sylvium.* Reprinted, with Henner's *Apologia.* 12mo. *Venice.* 1555.

^d *Op. cit.*, p. 188.

well as his paraphrase on the books of Rhazes and the work he had written upon drugs.^a He had made up his mind to be thenceforth the Emperor's attendant, and nothing more. And now that the troubled period of danger and difficulty was past, Vesalius determined to settle down in life. He accordingly married^b Anne van Hamme, the daughter of Jerome van Hamme and Anne Asseliers his wife. As befitted the Emperor's physician, the alliance was a noble one, for Van Hamme was a Councillor of State and Master of the Exchange at Brussels. The ceremony took place in 1544 or 1545.

Early in 1546 Vesalius was in Nymwegen (Noveomaji) with the Emperor, and at the latter's request he attended Bernard Navagiero, the Venetian Legate, who lay ill there. After the Legate was restored to health both he and his physician followed Charles V. to Regensburg (Ratispona).^c Here Vesalius wrote a letter on the virtues and healing properties of the Chyna root,^d and probably repenting of his resolution not to write again about anatomy, he went to some pains to show clearly his own position with regard to Galen. This epistle was addressed to Joachim Roelants, but ultimately fell into the hands of Andrew's brother, Francis Vesalius, by whom it was published. It was the only reply he vouchsafed to the screams of his virulent detractors. Later on, Henerus^e and Cuneus,^f and others took up the pen in his defence, but he himself was silent.

It would appear that Vesalius was held in high estimation, notwithstanding the attacks made upon him. The Emperor was not a man who would give a physician much chance of carrying off a happy cure, for he trusted blindly in certain

^a "Ea omnia (in posterum manus facile a scribendo cohibitus) cremavi." Epis. de Chynæ Radice. Op. Omn. P. 680.

^b Goethals. Lect. sur l'Hist. des Sc. et des Arts en Belgique. 8vo. Brux. 1837. Tom. II., pp. 112-138.

^c "Ilic (Noveomaji) tam diu a Cæsaris abitu mihi fuit, propter adversam D. Navagerii valetudinem morandum. Epist. Chyn. Op. Omnia, p. 621. "Una cum Venetorum oratore Navagiero, Ratisponam veni." Op. cit., p. 621.

^d Andreas Vesalii Bruxellensis, Medici Cæsaris, Epistola Rationem, modicunque propinandi radicis Chynæ decocti, pertractans, et praeter alia, quaedam, &c., &c. 4to. Basileæ, 1546, pp. 204.

^e Adversus Jacobi Sylvii depulsionum anatomicarum calumnias pro Andrea Vesalio Apologia. Renato Henero Lindoensi Medico authore. 12mo. Venitiis, 1555, pp. 70.

^f Gabrieli Cunei. Apologie Francisci Putei pro Galeno in anatome examen. Venitiis, 1564.

charms, and had amulets and stones to expel and alleviate particular diseases.* For all that he had great confidence in Vesalius. No doubt this increased the renown which the latter had gained in the popular mind, so that credence was given to the most wonderful stories of his skill. Thus the grave Thuanus relates, at length, how Maximilian von Egmont, Count of Buren, a former ambassador in England, consulted Vesalius with regard to an angina from which he suffered. The physician recognised that the malady would be fatal and even told the Count the day and hour of his death. Von Egmont was so impressed with the knowledge and skill of his adviser that he at once looked upon himself as a doomed man, and set about arranging his affairs. Thereafter he invited his friends to a banquet, where he entertained them with great magnificence, and after giving each one some presents or money he bade them a solemn farewell, and, returning to his chamber, expired at the very hour foretold.^b Vesalius himself,^c in speaking of the case, says nothing that would lend colour to this account, and it is very improbable, but it is worth relating as showing the opinion in which he was held when cautious and critical men would believe such things of him. His fame was so widespread over Europe that we find him commissioned^d by the King of Denmark to choose a skilful physician for him.

For the next few years Vesalius followed Charles V. in his various expeditions, and he also found time to superintend the second edition of his Anatomy, which was published at Bâle in August, 1555. Meanwhile the health of the Emperor had been declining, and his attacks of gout more and more incapacitated him in his incessant work, and thus he began to think seriously of what he had already contemplated for some years—viz., to retire from the throne. It is said that Vesalius informed the Emperor that his end was near.* However that may be, on Oct. 25th, 1555, Brussels saw that magnificent and most impressive scene wherein the great ruler of Europe bade farewell to his dignity and honour, and retired a simple gentleman to prepare for death in the obscurity of the cloister. He bequeathed

* Mignet. *Charles Quint, son abdication, &c.* 2nd edit., 8vo. Paris, 1854.

^b Thuan. *Historia sui temporis.* Fol. Francofurti. 1625. Vol. I., p. 110.

^c Vesalii. *Exam. Fallop. Anatom. Observ.* Venitii. 1564. P. 108.

^d Cardani. *De vita propria. Opera Omnia.* 10 vols. Fol. Lugdun. 1663.

Tom. I., p. 28.

* Feller. *Dictionnaire Historique.* 8 vols. Liège, 1794. Vol. VIII., p. 630.

Spain and the Netherlands to his son Philip II., and the latter continued Vesalius in the position he had held under Charles V. And it is evident that Philip thought as highly of his physician as his father had done, for in 1559, when Henry II. of France was mortally wounded in his tourney with Count Montgomery, he despatched Vesalius to the injured prince.^a But the aid came too late, for Henry speedily died of abscess of the brain. Later on in this same year Philip went to take up his residence permanently in Spain, and we find that Vesalius and his wife accompanied the king on the journey.^b In 1561 Fallopius wrote, under the simple title of *Anatomical Observations*,^c a series of most interesting facts, and Vesalius, on receipt of the book, began a criticism of it, which, when finished, he sent to Fallopius, but the latter was dead ere the letter arrived. Next year Vesalius had another famous opportunity for displaying his skill, and he came through the ordeal with increased honour.^d The son of Philip, Don Carlos, had received a very severe scalp wound which rapidly went on to inflammation and abscess formation. There were some eleven or twelve doctors present, but Vesalius was the only one who suggested making an opening to drain away the pus. Ultimately, however, he won the others to his way of thinking, the incision was made, a large amount of matter flowed out, and the Prince at once began to recover.

But neither his fame nor his knowledge could save him, and the great physician fell sick and was like to die. In his extremity he vowed to make a pilgrimage to Jerusalem if he were restored to health, and accordingly in 1564, having recovered from his illness, he set about accomplishing his vow. So much speculation has been excited with regard to this pilgrimage, and so many different theories have been advanced concerning it, that it may prove not uninteresting to examine the subject in some detail.

Probably the most well-known account is that given by Herbert Languetus, and endorsed by Boerhaave and Albinius. In 1565 Languetus wrote to Caspar Peucer as follows:—"There is a rumour that Vesalius is dead. Without doubt you have already heard that he set out for Jerusalem. I have news from

^a Thuan. Op. cit. Vol. I. P. 454, under year 1559.

^b Clusius in Thuan. *Hist. sui Temporis*. Fol. Londini. 1722. Vol. VII. Part VI, pp. 14-16.

^c Gabrialis Faloppii. *Observationes Anatomicae*. Venetiis, 1561.

^d See account in Gachard's *Don Carlos*. 2 vols. 8vo. Leipzig, 1863. Vol. I. p. 88, &c. seq.

Spain which gives a wonderful reason for his pilgrimage. There was committed to his charge a Spanish noble who was sick. On the death of this man Vesalius, who was not quite satisfied as to the cause of the illness, asked permission of the relatives to open the body. The request was granted, but on opening the thorax the heart was found to be still beating. The relatives then, not content with accusing Vesalius of murder, brought him before the Inquisition also, on the score of impiety, thinking that thereby they would be the more thoroughly revenged on him. When the facts of the death were made known, the error of the great physician could not easily be excused, and the Inquisition sentenced him to death. It was with great difficulty that the authority and even the entreaty of the king rescued him from this fate. At length, at the instance of the king, and in fact of the whole court, Vesalius was pardoned on condition that he expiated his offence by a pilgrimage to Jerusalem and Mount Sion.”*

Such is the story of Languetus, and it is indeed remarkable that it has been, and still is, received with such implicit faith. At the outset it is noteworthy that the account is a hearsay one, and that the writer gives absolutely no authority for his statement. Not only that, but no other contemporary record endorses the tale. Ambrose Paré, indeed, speaks of a similar occurrence which Lancisi^b and others believe to refer to Vesalius. I quote from an early English translation: “—‘Those who do not mark this, fall into that error which almost cost the life of him who in our time first gave life to anatomical administration, which was almost decayed and neglected. For he, being called in Spain, to open the body of a noble woman, who was supposed dead through strangulation of the womb, behold at the second impression of the incision knife, she began suddenly to come to herselfe, and by the movings of her members and body, which was supposed to be altogether dead, and with crying to shew manifest signes that there was some life remaining in her. Which thing strooke such an admiration and horror into the hearts of all

* I have not seen the original letter, but it has been copied into Thuanus, Blount, and Adamus.

^a J. M. Lancisi. *De Subitanis Mortibus*. 4to. Rome, 1707. Vol. I., cap. xv., p. 53.

^b The works of that famous chirurgeon, Ambrose Paréy, translated out of the Latin and compared with the French. Fol. Lond., 1684. Lib. 24, cap. xlvi., p. 941.

her friends that were present, that they accounted the physician, being before of good fame and report, as infamous, odious, and detestable, so that it wanted but little but that they would have scratched out his eyes presently: wherefore hee thought there was no better way for him, if he would live safe, than to forsake the country. But neither could he so also avoyde the horrible pricke and inward wounde of his conscience (from whose judgment no offender can be absolved) for his inconsiderate dealing, but within few dayes after, being consumed with sorrow, he dyed, to the great losse of the commonwealthe and the art of physic." Paré wrote this in 1579, and it may be that he has given merely a corrupted version of the story of Languetus. And on that account, as well as from the fact that there is no mention of the pilgrimage, we may altogether disregard this version. This would leave Languetus as the only witness to his own story. Besides, the more his account is examined on its intrinsic merits, the less probable it appears. What was the name of the noble who came to so sad an end? Before what tribunal was Vesalius arraigned? In what town did the trial take place, who were his accusers, who his judge? To these questions no reply can be given, because contemporary records are silent. Vain is the examination of the works of Watson,^a Leti,^b Llorente,^c Chandler,^d Lea,^e &c., &c. Further, it may be doubted if a man of such unrivalled knowledge as Vesalius would have opened a body not yet dead. It is quite possible that he might have considered one dead that was not; but, as Lauth^f and others have pointed out, it is quite ridiculous to think that the first few superficial incisions would not have shown him his mistake. To sum up the whole story, Vesalius is made to commit an error which it is not in the least likely he would have made; for the murder of this man who has never been identified, he is arraigned by nameless accusers before unknown Inquisitors, in a town not yet localised. Surely never has

^a History of Reign of Philip the Second, by Robert Watson. 2 vols. 4to. Lond., 1777.

^b G. Leti. Vita de Catolico re Filippo II., monarca delle Spagne. 2 vols. 4to. Cologni, 1679.

^c G. A. Llorente. Histoire Critique de l'Inquisition d'Espagne. 4 vols. 8vo. Paris, 1817.

^d Chandler's History of the Inquisition. 2 vols. 4to. Lond., 1731.

^e History of the Inquisition. 2 vols.

^f Lauth. Histoire de l'Anatomie. Tom. I., p. 588. Strasburgh, 1815.

baseless story been so implicitly credited. The simple *on-dit* of Languetus has passed for rigid truth. And yet the testimony of this man in this particular instance needs scrutiny, for he was an ardent politician, and a keen partisan of the Prince of Orange. He accordingly would be only too glad to grasp at a story which, while showing the Spanish Government and the Inquisition in an unfavourable light, would arouse the indignation of the Belgians at the treatment of their fellow-countryman. If there is any shadow of truth in the whole matter, it may be in this, that Vesalius was confounded with Jean Wesalia, who had come under the ban of the Inquisition. It may seem strange that the account of Languetus was not denounced by those who knew the real story, but it must be remembered that the letter was a private one, and hence did not come into the hands of the public till it was published at the beginning of the 17th century in the works of Thuanus, Adam, and Blount. It did not, however, altogether escape condemnation, for its accuracy was definitely denied by Andreas Dudith,^a Clusius, Metellus, and others. And notwithstanding the widespread currency of this account, it has been condemned by those best fitted to form a judgment on the matter, among whom I may mention Lauth,^b Burgraeve,^c and Roth.^d

Johannes Metellus,^e in a letter to George Cassandrus, dated 1st May, 1565, gives the following reason for the pilgrimage:— “Vesalius, for a particular wager of money, and in order that he might gain the more wealth, set out last year from Spain: nor did he join the company of the merchants, but so meanly had he provided himself with provisions that he went with the pilgrims.” Metellus has no authority beyond his own statement, and the story is on the face of it ridiculous and improbable. At that time such a long journey would not be undertaken without much thought and grave consideration, for it involved not only no little expenditure of time and money and energy, but also very serious risk to life and limb. It is extremely unlikely that Vesalius would leave his honoured position at the

^a In *La Cratonis à Kraftheim, Consiliorum et Epistolarum Medicinalium.* Lib. III. 8vo. Francofurti, 1591, p. 305.

^b Lauth. *Op. cit.*

^c Burgraeve. *Études sur André Vesale.* 8vo. Gand. 1841.

^d M. Roth. *Andreas Vesalius Bruxellensis.* 8vo. Berlin, 1892. Pp. 500.

^e Illust. et clar. virorum Epistole selecte scriptae à Belgis vel ad Belgas. Lugdun. Batav. 8vo. 1617. Epistola 72, p. 872.

Spanish Court and expose himself to the innumerable dangers of such a journey in order to win a foolish wager.

Argenterius^a and Johannes Imperialis^b pretend that the envy of the Galenists hurt his reputation at court, and that he prevented his ignominious dismissal by asking leave to go on this pilgrimage. But this is quite improbable, when the fearless nature of the anatomist is considered, for the journey would be merely a cloak to his disgrace. If he ran any chance of losing his post through the intrigues of his opponents, his best weapon against them would be to expose them to the world instead of putting himself to much inconvenience and danger to hide them.

The idea put forward by Sweertius in 1628 is hardly worth mentioning were it not that Kingley^c is disposed to believe in it. It says that Vesalius was so harassed by his imperious and scolding wife that he determined to get rid of her for a while by going on a pilgrimage.^d I need say no more than that Sweertius wrote some 64 years after the event, and that there is no contemporary evidence to support him.

Still more recently Burgraeve has suggested that Andrew was tired of his life at court and anxious to return to his career as an anatomist, and that he made the pilgrimage an excuse to get away from uncongenial surroundings. We know, indeed, that Vesalius did not greatly like Spain, for he could not accommodate himself to the manners and customs of the Spanish people, but it does not follow that the pilgrimage was merely an excuse. If he wanted to leave Spain he could have got away for the asking, but even if subterfuge were necessary in order to escape from his position at court (a supposition extremely unlikely) the pretence would be no longer necessary when he had gained Italy and was therefore beyond the reach of Philip's power. He must indeed have entered with extraordinary zeal into his deception, when, not content with obtaining what he aimed at, he kept up the fraud when it was not only of no use to him, but even exposed him to serious dangers. Finally there is the fatal objection of the want of documentary support.

^a Argenterii Opera Omnia. Hanoviae, 1610, ad Lectores.

^b J. Imperialis. Museum Histor. et Physicum. 4to. Venetia, 1640. P. 55.

^c Charles Kingley. Historical Lectures and Essays. Lond., 1880. P. 357.

^d Francisci Sweertii, Athene Belgiorum vel, &c. Antwerpiae, 1628. P. 128.

This is one of the many examples of people taxing their ingenuity to find an explanation when the proper one is staring them in the face. Vesalius was a Roman Catholic, and, being such, it was quite natural that he should go on a pilgrimage. There was nothing in the least remarkable that a man of high position and great attainments should undertake a journey of this kind, and kings, princes, and nobles elbowed peasants and beggars to the shrines. Let us hear what Clusius,^a the great botanist, says, who arrived in Madrid a short time after Vesalius left it. He tells that the court physician went away of his own free will, in the fulfilment of a vow he had made during a recent illness, and our informant adds that this is not mere gossip of the town, because it was confirmed by Charles de Tissac, Procurator of the Netherlands at Madrid, a trustworthy authority. No story could be more natural and authentic. Nor is Clusius alone in considering that the real motive for the pilgrimage was a religious one, for he is followed by many authorities, even including those who have imagined other motives to have been at work. Thus we find Thuanus, Adam, Freher,^b Castellanus,^c &c., making mention of the vow, and Lauth (Vol. I., p. 533) finds fault with Vesalius for being so superstitious as to believe in the efficacy of a pilgrimage.

Thus much with regard to the very vexed and much-discussed question of the cause of the pilgrimage. Before leaving Madrid Vesalius lent out moneys of which he had no immediate need to several Flemish noblemen at the Spanish Court, stipulating that they should pay him back with considerable interest when he had returned from Jerusalem to the Low Country. Thereupon, having obtained a special passport from Philip, he set out with his wife for Perpignan on the Spanish frontier. The custom-house officers in this town were a rapacious set of men, whom it was necessary to bribe into some semblance of courtesy. Vesalius resisted their demands, and thinking his passport put him above their authority, took legal action against them, but the process extended over fifteen days, only to end in favour of the officials, and so he lost not only his time but also some fifty pieces of gold. From thence

^a In *Thuani Historia sui temporis*. Fol. Londini, 1738. Vol. VII., Part VI.

^b D. P. Frheri. *Theatrum Virorum Churorum*. Fol. Noribergae, 1688. P. 1,254.

^c P. Castellani. *Vite illustrium medicorum*. Antwerpiae, 1618. P. 195.

his wife and his furniture were sent on to Brussels, while he himself set out for Venice.*

Here he obtained the manuscript of his letter to Fallopius, and he gave it to Franciscus Senensis that it might be published. Malatesta of Rimini, the commander of the Venetian forces, was just setting out for Cyprus, and Andrew probably accepted his convoy so far, but we are told that he went in company with the pilgrims, which, of course, was only natural, considering the purpose of his journey. It is usually stated that while at Jerusalem he was invited by the Venetian Senate to resume his old post as Professor at Padua, vacant since the death of Fallopius. If such an invitation were extended to him it must have been unofficial, for Prof. Roth,^b in his extended research into the archives of the Senate and of the University, has been unable to find any mention of the offer.

The journey to Jerusalem seems to have been accomplished without a mishap, but the return voyage was very unfortunate, for the vessel was buffeted about by contrary winds for some forty days. The provisions ran short, and privation, added to the constant anxiety of the time, preyed upon the health of Vesalius, never very robust. He must have felt the end near, for he begged the sailors not to cast his body into the sea should he die. At length the island of Zante was sighted, and owing to his enfeebled health he was put ashore and left there. A still more melancholy account says that the vessel was wrecked and Vesalius cast half dead upon the island. In any case his illness became speedily aggravated, and in poverty and misery, without a friend to soothe and comfort him, he passed away from this life on the 15th Oct., 1564. The rude people of the place were terror-stricken at the idea of the sick pilgrim who had come amongst them, and believing that Vesalius suffered from the plague, they not only shunned him during life but would not allow his body to be buried when dead. And so the corpse was cast upon the sea shore, where it would have been eaten by beasts of prey had not a Venetian goldsmith^c who chanced that way recognised the king's physician, and had the charity to inter the body beneath a heap of stones. Surely a most sad fate; cut off in his 50th year while a glorious prospect

* Clusius. *Loc. citat.*

^b Prof. Roth. *Op. cit.*

^c P. Bizarus (*Pannonicum Bellum*, Sto., Basilæ, 1578), p. 284, heard the story from the goldsmith himself in the presence of Prosper Borgarutius.

of work and achievement was still before him! And yet he cannot be said to have died prematurely; his work was accomplished. He might have made more discoveries and filled up many of the blanks existing in his knowledge, but the object and aim of his life was fulfilled; he had cast down the idol of authority. Men might do their best to replace it, but never after him would Antiquity enshadow the Present so as to deaden and darken its living energies. Vesalius was a great physician, a great anatomist, a great man in every sense, but his excelling greatness lies in the fact that he was a Liberator, that he freed his fellow-men. He made anatomy a possibility—a possibility which his own exertions brought near to absolute reality—and through Anatomy, Physiology, Pathology, Surgery, and all the other sciences, handmaidens of medicine, are indebted to him.

A final word with regard to his relatives. His father had died^a in 1544 or 1545, but his mother was still alive when he wrote *De Chyna Radice* (1546).^b His brother Francis inherited the family taste for medicine, and only continued his law studies at the urgent request of his parents. In the preface to the letter *De Chyna Radice*, which he edited, he tells us that he was passionately fond of dissecting, and longed to be in a position to defend his brother Andrew. He probably finally adopted medicine as a profession, and is doubtless the same Francis Vesalius who died during the plague at Vienna in 1552. At any rate he was dead in 1561 when Andrew^c wrote his reply to Fallopius. It is said that Andrew had also a sister^d who married Nicholas Bonardus, burgomaster of a Dutch town. Andrew's widow married secondly a young Flemish nobleman called Van der Noot;^e and his sole child Anne espoused Jean von Mol, grand falconer to the King of Spain, by whom she had five children, Louis, Henry, Adrienne, Isabella, and Anne. It is recorded that Louis became a monk, but the others I have been unable to trace.

END OF PART I.

(To be continued.)

^a In 1546 (*Op. Om.*, p. 681) V. writes: "Patre meo p̄is memorie."

^b *Op. Omnia*, p. 681, "qui, inter eos reperiuntur, quos mater mea adhuc servat."

^c *Op. Omnia*, p. 795. "Fratriis mei, p̄is memorie, auctoritate."

^d See Roth. *Op. cit.*, p. 451.

^e So Clusius, but Herkenrode (*Nobelaire du Pays Bas*) gives her second husband's name as Henri van der Meeran.

ART. XII.—*Malignant Endocarditis.** By JOHN JOSEPH BURGESS,
F.R.C.S.I., L.R.C.P.L.

THAT the subject of malignant endocarditis has occupied largely the attention of our profession since its first recognition by Wilkes in 1852 is attested by the number of papers written on this interesting and very fatal malady. In these we find respective groups of cases so divergent in symptoms that were it not for the finding of the invariable pathological changes in the valves of the heart after death, one would be disposed to regard them as dissimilar forms of disease.

This diversity has led to the division of malignant endocarditis adopted by Osler, of Philadelphia, in the Gulstonian Lectures of 1885, into four varieties—typhoid, pyæmic, cerebral, and cardiac; and as regards the physical signs into—

1. Cases which affected the heart primarily.
2. Cases which affected the heart in the course of other diseases, such as pneumonia and acute rheumatism.
3. Those which are septic in origin, and in which the cardiac signs are preceded by symptoms of septic poisoning.

This subject has been twice before the Academy in two papers—one by Dr. Purser, on a case of the cerebral type of the disease, the other by Dr. Walter Smith, on the rarer form attacking the right side of the heart. In both the evidence of a most carefully made necropsy gave them the greatest interest in a pathological sense, which advantage I regret I was unable, for certain reasons, to obtain for mine. I am, therefore, limited to bring forward this case in its clinical aspect, and to endeavour to excuse myself for the absence of fuller and more satisfactory data by presenting to you in detail the symptoms, and thereby giving you an opportunity of judging the difficulties of the diagnosis.

CASE.—Late in the evening of the 15th of August, 1898, I was called on to see a lady, Mrs. R., who had taken suddenly ill. She had come to town with her husband, a solicitor from the south of Ireland, to spend a few weeks in Dublin and remain for the Horse Show. She was a tall, moderately thin woman, of emotional temperament, florid and healthy looking, aged thirty, and six months pregnant; had four living children,

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, December 15, 1898. [For the discussion on this paper see page 273.]

no miscarriages. She informed me except for her pregnancies she had never been a day unwell. On this day, after taking a warm bath, she got a chill, which lasted for some time, with shivering, immediately followed by a prostrating headache, with pains all over her body, and a general feeling of sickness. She was very restless; skin hot and dry; face flushed; temperature, $108\cdot4^{\circ}$; pulse, 128; no cough or sore throat. The only physical sign detectable was a blowing murmur at the apex of the heart, perceptible in the axilla and at the left scapular angle. Except for some slight pains after wettings, which gave her no inconvenience, she had never suffered from rheumatism, nor had her breathing been affected by exertion.

The next morning she was apparently quite well. Her temperature was 97° , pulse 78, but the murmur was still audible and unchanged; all pains gone. She was quite cheerful, and decided to return to her home on the 18th, as she said she had had enough of Dublin.

In response to a telegram on the morning of the 18th I visited her. She told me she was afraid she must have got a relapse. She had been quite well and out the day before, but during the night her husband had taken ill, and getting out of bed several times when the window was open (the weather being then very warm) she had another shivering fit in the early morning, which was succeeded by stiffness in her neck, pains between the shoulders and at the back of the head. Her temperature was 101° , pulse 120; murmur unaltered in character; skin dry. There was considerable enlargement of a gland in the parotid region, with great tenderness, which evidently caused the stiffness of the neck; no sore throat. In reference to this glandular swelling she stated it had come on before during her pregnancies, and gave trouble for a few days.

On the next day, the condition being otherwise unaltered, the pains had extended to the lower extremity; knees drawn up and flexed to nearly a right angle. There was no redness or inflammation about any of the articularations; no sign of roseola or other rash. The pains, as she expressed it, extended in paroxysms from the inside of each knee to the pit of her stomach. They were so violently increased by movement that she screamed; yet when her attention was otherwise directed she could be lifted up without any complaint. A peculiar and continuous symptom unassociated with these was a violent, lancinating pain over the symphysis pubis. The knee reflexes were slightly exaggerated; no tender points on percussion could be found over spine; considerable hyperesthesia about all the painful regions, but complete tolerance of deep pressure; and there was no hardness along the course of the veins. The abdomen was neither tympanitic nor painful, and the skin was everywhere free from redness and dry. Her mind was perfectly clear; tongue slightly furred in centre; anorexia and constipation; urine non-albuminous.

On the 22nd the symptoms, with the exception of the inflamed gland

in the neck, which had improved under treatment, being the same, premature labour set in, and she was delivered of a living six months' foetus, which, however, survived its birth only twenty hours.

For the next few days there was no change. The confinement appeared to exercise no influence over the course of the illness; the lochia were normal; the uterine symptoms were similar to an ordinary uncomplicated labour case; the pains, temperature, and pulse did not vary—the former were generally better in the morning but became troublesome at night, so that sleep was impossible without narcotics.

On the 25th her breasts were hard and painful; the temperature rose to 103°. Dr. Nixon saw her and attended with me from this day.

The problem before us was—A young, healthy married woman, of hysterical temperament, had been ill for ten days with pyrexia and pains without any inflammatory symptoms, except a murmur with the first sound of the heart. Three days ago, on the seventh day of her illness, premature confinement at the sixth month had taken place. We agreed that the present conditions were somewhat aggravated by the milk in the breasts, which caused the rise in the temperature, and that the pains were of a neuralgic character, made worse by the hysterical tendency; the heart murmur Dr. Nixon did not think of recent origin. The two difficult points to account for were the continuous pyrexia and the pain at the symphysis, for which we could discover no cause.

For the three following days the temperature continued at its new level, the other symptoms being unaltered, except for a development in the occurrence of dysuria—she had to be lifted up in bed into a sitting posture before the urine would come away. A vaginal examination was made, which disclosed no pelvic cellulitis or other cause to account for this new symptom—the lochia were plentiful and not foetid, and the uterus appeared shrunk to its normal limits.

On the succeeding day diarrhoea of a typhoid character came on, there being five or six motions during the night. All this time the pain was the same in the lower extremities and symphysis pubis; the upper pain, that is, in the back of neck and between the shoulders, had improved; the swelled gland had undergone resolution; there was no tenderness or enlargement of the spleen; the urine contained no albumen, but the dysuria continued; the temperature remained high, and the tongue had become browner and drier, with no signs of a rash on skin. Her intellect was perfectly clear, and except for occasional fits of crying she was not depressed.

At this time, despite the absence of many pathognomonic symptoms, I considered the case looked very like enteric fever—when there occurred a sudden change the diarrhoea ceased, the pulse and temperature fell to normal, the pains disappeared, the tongue cleaned and became moist, her spirits improved, and except for the evidence of damaged valves she

seemed to be progressing towards convalescence. This occurred on the evening of the 30th August and continued for the next day and night—in all nearly thirty-six hours.

On 1st September I found her very agitated. Her husband seeing her so much better had left for home to attend some urgent business. This appeared to affect her very much—she had been crying all the morning, and felt feverish and sick. Her temperature was 103° ; pulse, 128. The pains, which had gone, leaving some stiffness, fortunately did not return, but she had complete inability to pass water, and a catheter had to be used. Dr. Nixon saw her with me in the afternoon. The fever continued, and she appeared more depressed than formerly.

The next day (2nd September) I found her much more cheerful, but with no abatement in the fever. In the afternoon she had an attack of convulsions of a general character. When we visited her later on there was incomplete aphasia, which was gradually passing away, as the nurse informed us she was unable to speak for half an hour after the convulsive seizure. There was partial paralysis of the right arm and right side of face—so that the case appeared to belong to the type of brachio-facial monoplegia—the heart was acting tumultuously, and the murmur had changed and become louder and rasping. She was able to put out her tongue, which deviated to the right.

At 10 p.m. (six hours later) she was still conscious, but had developed complete aphasia, right hemiplegia, paralysis of right side of face, and paralysis of the right third nerve—presenting right ptosis, dilated pupil and right external strabismus; temperature, 105° ; pulse, 140.

By the wish of her husband Dr. W. Smith and Dr. Gordon were called in.

On the 3rd September she was seen by Dr. Gordon in consultation with Dr. Nixon and myself; she was then sinking into coma, which gradually deepened during the night, with dilated pupils; Cheyne-Stokes' respiration and relaxation of the sphincters, and she died at 2 p.m. on the 4th September, twenty days from the outset of the illness.

The case is remarkable for the following four things:—

1. The heart murmur.
2. The nervous phenomena.
3. The peculiar temperature.
4. Its obscurity until about forty-six hours before death.

In some of the recorded clinical cases of malignant endocarditis we find there has been a period of illness before the murmur was heard at the cardiac valves; in others the murmur was heard from the first, but in those there was previous history of its presence as a sequel of rheumatism.

Now, in this case it will be remembered I saw the lady six hours after she had taken ill, and at that time there was a distinct murmur at the cardiac apex, substitutive in character, and unaltered by the fall of the pulse on the following day. Her previous history of rheumatism amounted to nothing, the pains were of too fleeting a character. I have seen the mild varieties of rheumatism, extending from one part of the body to the other, frequently set up severe endocarditis, but here the pains were only such as anyone feels after being chilled in damp clothes, which lasts for a few hours or perhaps a night. I consider it most improbable that heart disease could be set up without the rheumatic symptoms giving at least some inconvenience by which they would be remembered. Was it possible to believe that the distinct mitral murmur was developed in a few hours from a state of robust health without rheumatic or pyæmic cause? The conclusion I came to at the time was that the heart affection was all depending, if not on rheumatism, on some cause associated with a former pregnancy. But subsequently, in a reply to a letter from me, her doctor wrote to say he had examined her heart six weeks before, and was positive there was no murmur present, and substantiated what she had told me about her always enjoying good health. Had there been a murmur at the time he must have recognised it, as it was distinct enough when I heard it for the most careless examiner to detect. The murmur was distinctly mitral, soft in character, until the occurrence of embolic seizure, when it became rasping, and was audible in the usual situations—at apex, axilla, and angle of scapula. Once I heard another murmur at the base, but was unable to detect it afterwards; her heart was apparently not enlarged, as the apex beat was inside the nipple line. What really occurred, in all probability, was that there existed old-standing disease of the mitral valve so limited in amount or situation, and set up by some other cause than rheumatism, that it presented no signs detectable in her ordinary health, but formed the nidus for the malignant form.

The nervous symptoms were the most pronounced feature in this case; so uncommon are they in this form that I can only find a single example, among the many recorded cases, of any similar. The pain was intense; the legs were drawn up on the abdomen to try to get some relief from the violent attack of lightning pain; sleep was impossible without opium. The pain

at the symphysis was evidently neuralgic, but it was very difficult to account for as it was not one of the ordinary painful zones of Reicher, found in hysteria; besides, it was not the seat of any nervous plexus which might account for the severity of this symptom.

As I mentioned before, there was no deep tenderness on pressure over the bone, nor at the symphysis articulation; and this symptom was not of an intermittent character, but it was present throughout—not made worse by the paroxysms attacking the branches of the anterior crural nerve. I attach no importance to the pains behind the shoulders, as I believe they were set up by the inflamed parotid gland. The later symptoms pointed to embolism in the left side, evidently affecting the mid-cerebral artery and cutting off the supply of left internal capsule, anterior central convolution, and para-central lobe; the paralysis of the third nerve, causing ptosis, external strabismus, and dilated pupil on the right, indicated a second lesion on the opposite side.

The regular character of the fever differed from the intermittent or remittent type generally found in this disease. First of all you will notice the sudden fall, on the 16th, from 103·4° to 97°. This remarkable depression did not again occur during the course of the illness. The temperature was found on the 18th to be 101°—this level it maintained for seven days without any distinct remission. I may state here that this temperature is exact—not influenced by any drug—it was taken by two thermometers several times in the twenty-four hours, and it never exhibited any variation from the chart [shown]. A remarkable thing was that ten grains of antipyrin would reduce it one degree for half an hour. After the confinement, on 22nd, except for the milk fever, the curve underwent no alteration; it remained two degrees higher with the same uniformity until the breasts began to resolve, when it sank to its previous level, and gradually dropped to normal; the fall which continued from the 30th August to the 1st September was very singular, and a much longer intermission than is recorded in any case I could find.

The next rise, on the 1st, is due to the recrudescence of the disease, and the hyperpyrexia to embolic infarction of the brain. The inflamed parotid gland was of interest in this respect; this I find is mentioned as a complication in at least one of the cases.

The point may now be raised whether the case was one of

malignant endocarditis from the first, or secondary to sepsis from the premature labour. I believe the disease was primary for the following reasons:—

1. Since the first feelings of malaise the symptoms had been the same until the embolism supervened, the dysuria being the sole exception as a symptom, which began after the confinement.
2. The temperature was unaltered, save for the slight rise caused by the breast trouble, after which it again sunk.
3. The lochial discharge was at no time foetid or scanty.
4. There were no rigors.
5. Even taking the latter hypothesis how would it then be possible to account for the previous pyrexia and nervous symptoms?

The chief point in this case is the diagnosis. Malignant endocarditis may be confounded with pyæmia, ague, tuberculosis, and enteric fever. From the first three there was no difficulty; there were no rigors, except at the beginning; there was no cough or sweating. The absence of this last was peculiar or different from most of the recorded cases; it more resembled enteric than any other disease—the aspect, with malar blush, somewhat dilated pupils, intellect clear, and colour of the stools, was like a mild seizure of the fever. Opposed to this was the prominent pains, the absence of meteorism, splenic enlargement, and iliac tenderness, with the peculiarity of the temperature, which was of a continuous type, and the non-appearance of rash. Except for the above (resemblance to enteric) it did not correspond to any of the varieties of the disease, and belonged to the first form in the second division, where the heart is primarily affected. This class is generally supposed to represent a condition where the malignant form supervenes on old-standing endocarditis. During the whole course there was no symptom of embolism of the spleen or kidney; no rigor or delirium. The nervous phenomena pointed to spinal trouble, but the presence of the fever and the absence of more pronounced symptoms of myelitis or inflammation of the membranes made me discard this source. The embolism occurred forty-six hours before death, and helped to substantiate the diagnosis already entertained of malignant endocarditis. I have made no reference to the treatment—all through it was symptomatic—and I will conclude with the hope that as

pathology has made such great strides since the days when Wilks first wrote on ulcerative endocarditis, so medical science will discover some means, if not of curing, at least of diminishing the risks of this unhappily ever fatal disease.

ART. XIII.—*A Case of Associated Paralysis of the Right Portio Dura and Pneumogastric Nerves.** By J. W. MOORE, B.A., M.D., M.Ch. Univ. Dubl.; F.R.C.P.I.; Physician to the Meath Hospital; a Professor of Practice of Medicine in the Royal College of Surgeons in Ireland.

LATE on the afternoon of Monday, November 6, 1893, I received the following note from a lady living in one of the suburban districts of Dublin:—"Dear Dr. Moore, will you kindly come out this afternoon to see a young lady who is staying with us. She seems suffering from a bilious or gastric attack, and is very poorly. If unable to come, will you kindly send word by bearer. Yours sincerely, C. D."

I obeyed this message without delay, and on my arrival at the house, about 5 45 p.m., found the patient as described in my friend's note. She was a girl of nearly thirteen years of age, well-grown, and apparently of sound constitution. At the time of my visit she was hot, flushed, and restless. Her pulse was 124, and the temperature in the axilla was 103·4°. Vomiting occurred from time to time. Signs and symptoms of palsy of the right portio dura nerve were markedly present. The right side of the face was motionless and without expression. The brow could not be wrinkled on that side, nor had frowning any effect. She could not close the right eye, and when she made the attempt, the eyeball turned upwards and outwards, but the lid remained motionless. Attempts to smile led to grotesque displacement of the mouth towards the left side; and articulation was much interfered with. The tongue, when protruded, seemed to be pushed out sideways owing to the deformity about the mouth. The right half of the palate was flaccid and motionless, and already there was extreme dysphagia. Hearing was unimpaired.

On inquiry I ascertained that Constance C.—for this is my patient's name—had enjoyed good health up to the early autumn of 1893, when she had a severe cold, followed by nasal catarrh, to which she appears to have been always more or less subject. She menstruated for the first time a year ago, at the age of only twelve years. To shake off the

* Read before the Medical Section of the Royal Academy of Medicine in Ireland, on Friday, January 19, 1894.

effects of the cold, her mother took her in October for a trip to Cork and Dublin from her home in the north-west of Ireland. Up to the evening of Friday, November 3, the girl seemed to be in excellent health and high spirits. During the night of the day named, however, she became acutely ill, with giddiness, headache, and finally severe vomiting and shivering, followed by high fever. The headache was referred chiefly to the back of the head, but it was also frontal. These symptoms persisted through Saturday and Sunday, but were supposed to arise from a "bilious attack." As the distressing vomiting continued on Monday, I was at last sent for and visited the patient in the evening as already stated.

A small blister was applied behind the right ear. Three grains of calomel were given at once, and it was ordered that a tablespoonful by measure of the following draught should be exhibited every second hour, as a febrifuge and sedative :—

R. Phenazoni, gr. 20;
Tincturæ gelsemii, min. xx;
Aqua chloroformi, ad ʒij.

M. ft. haustus.

At my next visit, early in the morning of November 7, the pulse had fallen to 96, and the temperature to 99.1°. The facial palsy was now complete. On examining the interior of the mouth, the right side of the palate was red and motionless, and I saw large quantities of foul-smelling secretion (mucus and pus) flowing or trickling down from the posterior nasal tract on the right side. There was also absolute inability to swallow. Any attempt to get even water down resulted in painful choking, spasmodic cough, and finally regurgitation through the nares and mouth. The salivary glands seemed to be stimulated by the effort at swallowing, for the mouth quickly filled with a quantity of ropy saliva. The patient was quite conscious, and there was no heart lesion.

I came to the conclusion that the paralysis was probably due to a neuritis of the portio dura on the right side, depending on a suppurative rhinitis. The sudden supervention of paralytic dysphagia was less easy to explain. I searched most carefully for the smallest trace of diphtheritic membrane on the back parts of the mouth, but in vain. Glycerine of borax was ordered as a mouth-wash—a teaspoonful to be mixed with a claret-glassful of water. It was also ordered that the nostrils should be washed out with an ounce of the following lotion :—

R. Potassii chloratis, gr. 60;
Sodii chloridi, gr. 90;
Glycerini, ʒss.;
Aqua, ad ʒ x.

M. ft. lotio.

As the bowels had not acted after the dose of calomel given the previous evening, I prescribed an enema of turpentine and asafoetida.

It should be observed that the patient, being quite unable to swallow, had been fed by the rectum every third hour during the previous night, the phenazone draught being added in tablespoonful doses to each nutrient enema, as well as a sufficient quantity of zymin peptonising powder. Four hours of sleep had been obtained through the night, but the patient became very restless towards morning. The day passed over quietly, but a wretched night followed, with only one and a half hours of sleep, and even that in snatches ; speaking also became very indistinct ; and both pulse and temperature rose towards morning—the former to 114 per minute, the latter to $100\cdot8^{\circ}$ at 8 30 a.m.

As the case appeared most grave, I urged the necessity for further advice, and Dr. James Little accordingly saw the patient, in consultation with me, immediately afterwards. I should also mention that two nurses from the City of Dublin Nursing Institution were at this time in charge of the patient, and to them I owe a very careful record of the daily dieting, therapeusis, and general management and condition of the case.

Dr. Little made an exhaustive examination, both on this day and again on November 15, and has been good enough to embody his impressions in the following notes :—

“ Nov. 3.—Occipital headache and giddiness.

“ Nov. 4 and 5.—Much vomiting, headache, giddiness, and feverishness.

“ Nov. 6.—Still vomiting, articulation affected, right facial palsy and inability to swallow.

“ Nov. 7.—Pus flowing from the right posterior naris—very offensive.

“ Nov. 15.—Temporary deafness in right ear, followed by an increased flow of offensive pus.”

He adds :—“ Since then complete right facial palsy ; patient speaks with a nasal twang ; any attempt to swallow brings on choking ; an offensive smell from the mouth, and purulent matter coming from the posterior nares on the right side.”

Dr. Little suggested that, with the view of securing intestinal and general antisepsis, 15 grains of benzoate of sodium should be administered in the nutritive enemata every third hour. He also recommended that 60 grains of boric acid should be dissolved in a pint and a half of tepid water, and that this solution should be allowed to siphon through the nasal passages every three or four hours, a Sieveking nasal douche being used for the purpose. A tolerably quiet night ensued, the patient sleeping on and off for six hours, but showing a good deal of nervous prostration, and passing urine twice.

On the morning of November 9, the pulse-rate was 96 ; respirations, 36 ; temperature, $100\cdot4^{\circ}$. Irritability of the bladder now began to give trouble, urine being passed frequently, but only in extremely small quantities—one to three drachmas at a time. It was turbid with urates,

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but cleared on subsidence ; was strongly acid, contained much albumen, but was free from sugar. Its density was 103° C. The moment strong nitric acid was added to it, nitrate of urea crystallised out. Troublesome thirst was on this day and afterwards relieved by enemata of cool water. At 12 noon she tried to swallow a little water by the mouth, but it " went very much against her breath," and in part returned through the nostrils. An attempt to swallow a grape was quite unsuccessful.

The skin near the anus now threatened to become sore ; but the tendency was controlled by the use of an antiseptic dusting powder, composed of an ounce of oxide of zinc, the same quantity of lycopodium powder, and half a drachm of pure liquefied carbolic acid. The quantity of urine passed in twenty-four hours at this time varied between 9 and 15 fl. ozs., the average quantity being 12 fl. ozs. On November 13, its specific gravity was 1040, it was highly albuminous, and nitrate of urea crystallised out with extraordinary rapidity—in fact, instantly.

The mouth was at this time clogged with thick,ropy saliva, which was got away by filling the mouth with glycerised water, and allowing the fluid to pour out between the opened lips.

On Wednesday morning, November 15, Miss C. complained for the first time of transitory deafness in the right ear. This was succeeded by an increased flow of fetid pus, and the foetor from the mouth and breath was very disagreeable. The deafness appeared to be due to temporary blocking of the entrance to the Eustachian tube by pus flowing down from the nasal passages.

Dr. Little saw the patient, in consultation, for the second time this day. As the lower bowel had become very irritable, and as the discharges from the bowels were horribly offensive, it was agreed, on his advice, to add 10 minims of tincture of opium to the nutrient enemata every third hour. Salt also was added to each injection. The daily dose of laudanum varied for a few days from 50 to 70 minims.

On Thursday, November 16, a decided change for the worse seemed to be impending. The girl felt weak and queer, her head was hot at one time, cold at another, she complained of soreness over the heart and then of abdominal pain, as she lay on her right side. Her feet and hands were icy cold, and she felt sick. The deafness returned for a short time, affecting (as before) only the right ear. She complained of a lump in her throat. On the evening of this day the axillary temperature rose to $102\cdot8^{\circ}$, the pulse was small, thready, and rapid (110-112). She obtained relief as the night wore on, and rinsed out her mouth with freshly made tea next morning. The attack appeared to be septicæmic in origin.

It was now imperative that some further means should be taken to disinfect and deodorise the contents of the lower bowel. Accordingly, I ordered a two-minim capsule of thiocamf to be pushed into the bowel ~~several~~ times daily—some time before the administration of an enema.

This measure was fairly successful, the capsules were nearly always retained, and less gas of an offensive kind was formed and escaped from the bowel. Notwithstanding this, the discharges were very unhealthy, and during the next two days the bowel became less and less tolerant of the nutrient enemata, although their bulk was reduced one-half. They were still given at intervals of three hours, as the girl was manifestly wasting and failing in strength. Indeed, so critical was her condition on Saturday, November 18, that I felt it absolutely necessary to begin feeding her with the oesophageal tube. Accordingly, at 6, 8, and 9 p.m. small quantities (10 fluid ounces in all) of warm peptonised milk were poured into the stomach through the tube. The stomach was then allowed to rest through the whole night, as the presence of food in it was such a novelty—practically nothing had been swallowed from Monday, November 6, to Saturday, November 18. A fairly quiet night followed.

Between 10 and 11 a.m. of Sunday, November 19, another meal of 5 ozs. of peptonised milk was given. At 3 p.m. she had 9 ozs. of beef-tea by the tube, and at 8 p.m. 10 ozs. of peptonised milk.

From this time onward Miss C. was fed like a typhoid fever patient—always, of course, through the tube. She began to put up flesh and to gain strength. The kidneys also acted more freely, and the albuminuria gradually decreased and finally ceased. On November 24, the specific gravity of the urine was 1033, and the secretion was only slightly albuminous. Although there was continued complete inability to swallow, great pleasure was derived from rinsing out the mouth every morning with a cup of freshly made tea, with milk in it; also from gargling the mouth with glycerised water or with plain water from time to time. On and after November 18, also a linctus of glycerine of carbolic acid (3ss.), and glycerine of borax (3iss.) was used occasionally for a mouth and nose spray—one teaspoonful being mixed with four ounces of tepid water.

On November 24, Dr. Little saw her for the third time in consultation. There was some improvement, so far as the paralysis was concerned. Thus, the right side of the forehead could be to some extent thrown into wrinkles, and the right eye could be almost closed. It had been the seat of a threatening conjunctivitis—principally from exposure. The right palatal arch now moved freely, and the faacial reflexes were restored. The heart, however, was quick and weak, and temperature remained subfebrile, rising sometimes nearly to 100° F. We ordered the following mixture:—

R. Liquoris strychninæ, 3j;
Acidi hydrochlorici dil., 3ijj;
Liquoris hydrargyri perchloridi, 3vj;
Glycerini, 3vj.

M. ft. mist. Signa: "A teaspoonful by measure twice daily as directed"

(that is, with food by the œsophageal tube). "Antiseptic pastilles" were now used in the nose and mouth washes.

As indicating the condition of general nervous depression which was present, I may mention that incontinence of urine was a common, incontinence of faeces an occasional, occurrence at night. The daily output of urine at this period varied from 16 to 24 fluid ounces.

The next great step was taken on November 29, when she was allowed to sit up by the fire for twenty minutes. She felt very well and enjoyed the change immensely. On the afternoon of this same day she sat up again for forty minutes. On the following day she was carried downstairs for an hour. The incontinence of urine ceased from this time, and the quantity increased to 24, and finally to about 30 ounces. Miss C. now began to move about a little, and remained up for several hours each day. On December 6, she changed her abode from Morehampton-road to Waterloo-road, and bore the short journey right well. She now went out for a daily drive as the weather permitted. She read and was read to, and in a word began to enjoy life once more. Notwithstanding, the paralysis remained unaltered, and any attempt to swallow ended in failure and disappointment.

As the patient's parents were very anxious to go home to a distant part of the country before Christmas, it was thought well to have special advice as to the state of the nasal tract, and of the pharynx and larynx. Accordingly Dr. Richard A. Hayes joined Dr. Little and me in consultation on December 13. Dr. Hayes has been good enough to place in my hands the notes which follow:—

"On December 13, 1893, being asked by Dr. J. W. Moore to see Miss C. with him and Dr. James Little, I found the symptoms of paralysis of the right facial nerve as detailed by Dr. Moore. The velum palati, however, then showed sufficient reflex to somewhat impede the posterior rhinoscopic examination; but with the assistance of our very intelligent patient I obtained an excellent view of the parts.

"The mucous membrane of the naso-pharynx was red and swollen, as was also that of the right posterior naris, but no purulent discharge was visible. On examining the right anterior naris I found general redness and swelling, the inferior turbinate body being much enlarged.

"The left passage was normal, except that it was unusually roomy, allowing a clear view through to the pharynx.

"The swelling on the right side was at once reduced by spraying with a solution of cocaine, and there was then plainly visible a thin stream of pus passing down over the middle turbinate, and coming from between the superior and middle turbinates.

"On examining the larynx I found distinct abductor paralysis on the right side; the larynx was otherwise normal.

"The difficulty in swallowing was probably caused by paralysis of the pharyngeal constrictors, as the patient was unable to make any attempt at swallowing.

"There appeared to be no doubt, from the history of the case given by Dr. Moore and the appearances found in the nose, that there had been suppuration in the right sphenoidal sinus, the ready escape of the pus from the cavity, by way of the pharynx, as observed, preventing the pressure symptoms usually observed when the pus is retained; and it seems evident that the paralysis of the facial, and some parts of the pneumogastric, could not have been produced directly by the inflammation in the sinus, but must have been caused by extension of the inflammation along the base of the brain to the position of exit of these nerves from the cavity of the skull. Although no considerable veins from the sphenoidal sinuses pass into the venous sinuses, there is, doubtless, a certain amount of communication; and as the inferior petrosal sinus passes backwards in such a direction as to cross the nerves involved, it seems possible that there may in this fact be found an explanation of the singular and interesting combination of symptoms occurring in this case."

At this consultation it was agreed that iodide of potassium was the drug which would best fulfil the indications for treatment at the time existing. A simple solution of the salt was ordered, and a dose, representing at first 5 grains, and then 10 grains, was given by the oesophageal tube with one of the meals three times a day. No symptoms of iodism were apparent up to the time when the patient left Dublin for the County Sligo on Friday, December 22. She travelled by the limited mail train on that day to Ballina—a distance of 166 miles—and felt so strong at the end of that long railway journey that she asked her parents to be allowed to finish the journey home—a drive by road of three hours' duration. On her arrival at 6 p.m. she felt fresh and well, having borne her long day's journey much better than could reasonably have been expected.

On January 2, 1894, her father wrote to me—"I am sure you will be glad to hear that Connie is going on nicely. She is gradually getting stronger, but there is no change for better or worse apparently in the throat."

The electrical reactions were, unfortunately, not tested in my case. The paralysis of the facial nerve was clearly not due to a lesion *above* the facial nerve nucleus in the pons Varolii, for the orbicularis palpebrarum was completely palsied, and the conjunctival reflex was abolished. Accordingly, the "reaction of degeneration" (as Erb called it), "in which muscular irritability towards faradic

currents is usually markedly impaired, perhaps even appears totally gone, but in which the galvanic irritability is not only preserved, but actually heightened for a time" (W. G. Smith)—was most probably present, more particularly as the paralysis was so persistent. The question of electrical treatment was mooted at one of the consultations, but it was decided not to adopt it. As to prognosis, the origin and nature of the attack so clearly threatened a tedious course that it seemed unnecessary to apply electrical tests in addition to the numerous measures which were being taken to keep the patient alive and promote local and general antisepsis. I have long been familiar with the excellent paper on Facial Paralysis, which our President, Dr. W. G. Smith, read before the Medical Society of the College of Physicians, on Wednesday, January 2, 1878, a paper in which the author so clearly describes the action of induced (Faradic) currents, and of interrupted voltaic currents in the varieties of this form of paralysis as to leave nothing to be desired.*

But, to my mind, the chief points of interest in the present case are—the probable origin of the paralysis and its distribution.

To take the latter point first : the lesion of the seventh nerve was certainly above the geniculate ganglion, because the muscles of the soft palate (*levator palati*, *azygos uvula*, and probably the *palato-pharyngeus*) were involved. Next, the associated paralysis of the pharynx (*dysphagia paralytica*) pointed to some affection at the base of the brain, probably compression of the cranial nerves in the situation indicated in an interesting note which I have received from Dr. Francis T. Heuston—namely, in their course from the brain to the internal auditory meatus in the case of the facial nerve, and to the posterior lacerated foramen in that of the pneumogastric. That this latter nerve was implicated is fully confirmed by the results of the laryngoscopic examination made by Dr. Hayes, which showed abductor paralysis of the right side.

Dr. Heuston writes thus in reply to a query addressed to him by me to this effect—Given a case of suppuration in the right sphenoidal sinus, in what way might the corresponding facial, glosso-pharyngeal, and pneumogastric nerves become involved in inflammatory processes or suffer compression?—

"In reply to your question, I would say the most probable manner in which implication of the facial and pneumogastric nerves would occur

* Dublin Journ. of Med. Science. Vol. LXV., No. 74. Third Series. February, 1878. Page 125.

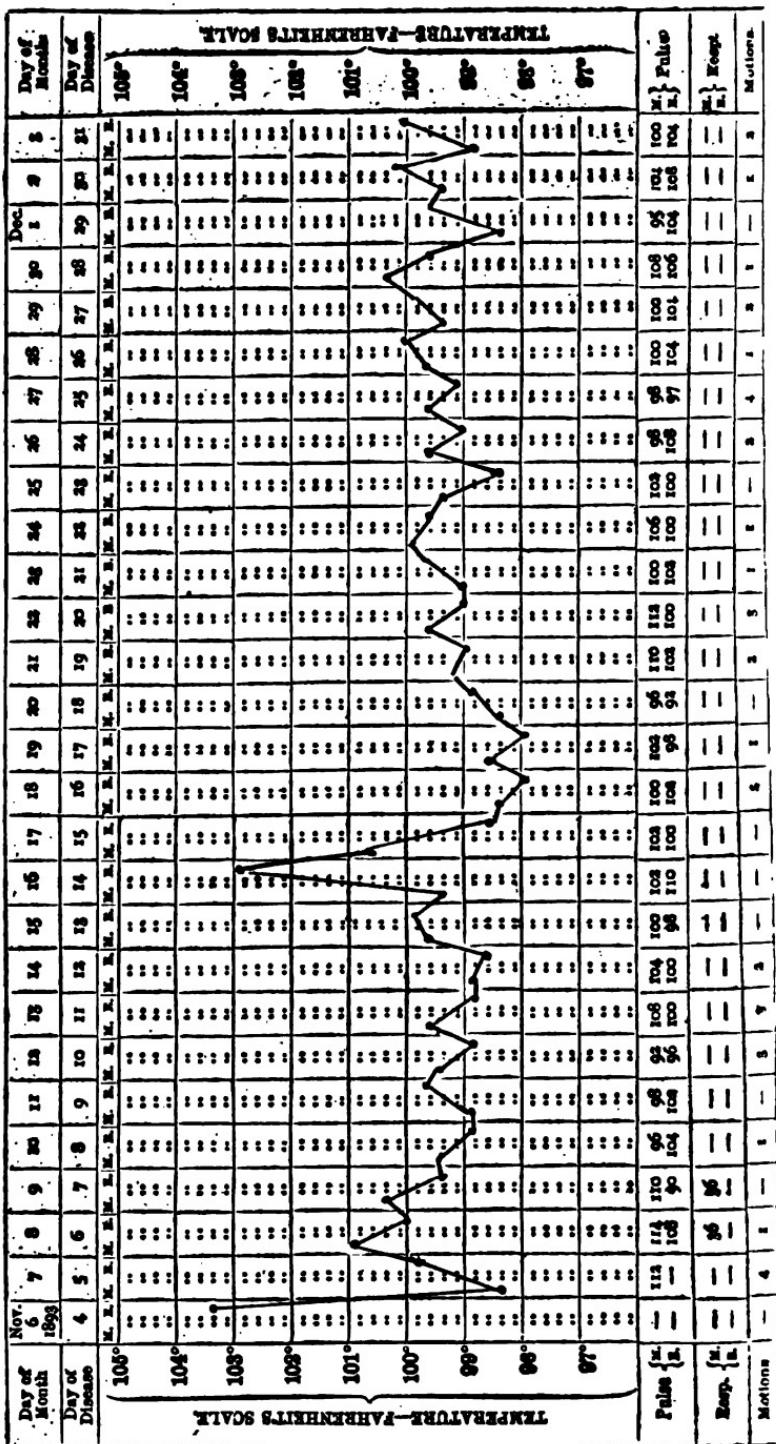
in connection with a suppurative affection of the sphenoidal sinus is as follows:—Owing to the proximity of the sphenoidal sinus to the sella-turcica and dorsum sellæ the inflammatory process would implicate the dura mater. Covering those parts an effusion separating the dura mater from the bone in the regions mentioned would probably extend towards the foramen magnum and posterior surface of the petrous portion of the temporal bone, the posterior fossa of the skull being in a more dependent position than the middle fossa. Taking such a condition as being probable, it is very easy to understand that this effusion should press on those nerves in their course from the brain to the internal auditory meatus (facial) and posterior lacerated foramen (pneumogastric) respectively, or as those nerves were leaving the skull through their respective foramina.

"Not having seen your case, I do not know if this explanation covers the ground, but would give it as the most correct answer, in my opinion, to your question."

When I addressed a further query to Dr. Heuston asking for an explanation of the escape of the auditory nerve from injury, when the portio dura was so seriously involved, he suggested that the pressure of inflammatory products, or of a collection of pus, might have been exercised only indirectly on the portio dura and pneumogastric nerves. In other words, that the pressure was made directly on the pons and medulla, and extended to the nerves involved at or near their points of origin, and before they came to the surface of the brain. In this way, he thought it possible, on anatomical grounds, to differentiate between lesion of the facial and escape of the auditory nerve. The facial nerve proper arises from an elongated nucleus which is deeply placed in the reticular formation below the floor of the fourth ventricle. The *pars intermedia* of Wrisberg arises from the extreme upper (proximal) end of the sensory nucleus of the glosso-pharyngeal nerve (Duval). The small-celled or chief nucleus of the lateral and mesial roots of the auditory nerve is superficially placed in the floor of the fourth ventricle. The large-celled or Deiter's nucleus is placed close to the inner side of the restiform body. I give these anatomical details on the authority of Dr. H. St. John Brooks, University Anatomist in the School of Physic in Ireland, who has contributed an excellent monograph on the "Nervous System" to Mr. Henry Morris's recently published "Treatise on Human Anatomy."*

*London : J. & A. Churchill. 1893. 8vo. Pp. 1,310.

Clinical Chart of Temperature, &c.
Constance C.; Age, 13.



PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Paludism. By DR. A. LAVERAN, Professor of Medicine in the School of Val de Grâce. Translated by J. W. MARTIN, M.D., F.R.C.P.E. London: The New Sydenham Society. 1893. 8vo. Pp. 197.

THE discovery of the haematozoon of malarial fever by the Professor of Medicine of Val de Grâce on November 6, 1880, was an epoch-making event in modern medicine. Hitherto it was supposed that the pathogenic micro-organisms belonged exclusively to the vegetable kingdom, and that the microbe or microbes of *paludism* were no exception to the rule seemed to be proved by the researches of Binz (1867), Eklund (1878), Klebs and Tommasi-Crudeli (1879), Marchiafava and Cuboni (1881), and others. Paludism is the first example of a disease being caused in man by a sporozoan.

Thirteen years have elapsed since M. Laveran made a communication to the French Académie de Médecine, on November 23, 1880, entitled "Note sur un nouveau parasite trouvé dans le sang de plusieurs malades atteints de fièvre palustre." That long period has served to establish the accuracy of M. Laveran's observations, and in 1889 his work received scientific recognition in the award to him of the Bréant Prize by the Académie des Sciences de Paris. The Commissioners who unanimously voted to bestow the prize upon him were MM. Marey, Richet, Charcot, Brown-Séquard, Verneuil, and Bouchard—names all well known in the domains of medicine and of science.

In his preface, M. Laveran explains the terminology which he has adopted in his book now under review. He points out that there are more than twenty different terms for the phenomena produced by "*palustral endemia*." From this long list he selects the word *paludism*, proposed by Professor Verneuil, as the most appropriate. It is short; it recalls the chief origin of the malarial fevers in marsh-miasm (Lat. *palus*, *paludis*, a marsh); and, lastly, it does not convey a false idea of the nature of the phenomena, as some other terms—for example, *intermittent fever*. Between the

words *palustral* and *paludal*, the author had considerable difficulty in making a choice. *Paludal* is probably the more exact term, but *palustral* had been accepted long ago. And so he adopted the latter word, employing it generally as a qualifying adjective—thus, “*palustral anaemia*,” “*palustral cachexia*,” and so on; but sometimes as a substantive, “*a palustral*” signifying a patient suffering from paludism.

In the work before us, M. Laveran gives in his introduction a brief *résumé* of researches antecedent to his own on the parasitic nature of paludism, and the state of the question in the year of his discovery, 1880. Chapter I. contains a full description of the *hæmatozoon* of paludism under its varied forms of—spherical bodies, flagella, crescent-shaped bodies, segmented bodies and rose-shaped bodies—the last two together constituting one of the four types presented by the parasite of palustral blood. In Chapter II. the author reviews the researches on the subject made subsequently to his own. In Chapter III. he describes the nature of the parasites of palustral blood and the analogous *hæmatozoa* found in different animals, especially the frog, the tortoise, the lizard, and various birds. The parasites found in the blood of birds are in particular closely akin to those of paludism in man. In Chapter IV. he argues, with great force, that the *hæmatozoon* which he has described is really the causal agent of paludism. This parasite is indeed polymorphous, but unique. Chapter V. gives the pathogenesis of the phenomena of paludism, and in Chapter VI. the means of protection on the part of the organism are set forth, and the questions of prophylaxis and of curative treatment are discussed. Quinine and the planting of malarious localities with eucalyptus trees are the most efficient prophylactics of paludism.

M. Laveran's singularly interesting and instructive work ends with notes of forty-seven illustrative cases, and a useful bibliography of paludism, sporozoa in general, and the *hæmatozoa* of animals which resemble those of paludism.

The book is well illustrated. In addition to several woodcuts inserted in the text, there are four beautiful coloured plates at the end of the work, as well as a series of eight photographs taken by Monsieur Yvon from the author's preparations. These are reproduced in two plates, Nos. V. and VI.

Dr. J. W. Martin has done the translation, as a rule, very well. We object to the introduction into English of the word “*Observa-*

tions" as a substitute for the familiar term "Cases." "Heat after the shivers" (page 151) is hardly an elegant expression. Very few blemishes, however, are to be found in the translation, which reads smoothly and is thoroughly grammatical and idiomatic.

In conclusion, we think the members of the medical profession in the United Kingdom and English-speaking countries generally are under a debt of gratitude to the New Sydenham Society for bringing under their notice one of the freshest and ablest monographs of recent years.

The After-Treatment of Cases of Abdominal Section. By CHRISTOPHER MARTIN, M.B. (Edin.); F.R.C.S. (Eng.); Surgeon to the Birmingham and Midland Hospital for Women. Birmingham: Cornish Brothers. 1894. 8vo. Pp. 48.

IN this little work the author has condensed into brief space all the most essential facts in relation to the treatment of abdominal sections. As he says in the preface—"I have endeavoured to crystallise my experience of the after-treatment—gained, for the most part, during the years when I was intimately associated with the work of Mr. Lawson Tait." This he has most admirably done. The book is primarily intended for the guidance of those who have little or no experience of surgical cases of this nature—"the family attendant who, perhaps, has never before seen an abdominal section, and who has the vaguest notions of the complications that may arise." But this is a modest claim. There are few surgeons, even with considerable experience in these cases, who will not learn something from the concise and admirable *résumé* here given of the various complications that may arise, of their signs and symptoms, and of the steps to be promptly taken if a fatal result is to be averted. We can earnestly commend the book to all those who practise this branch of surgery, with the belief that they will find it a sound and reliable guide.

Cancer of the Rectum. By C. B. BALL, M.Ch., F.R.C.S.; Surgeon to Sir Patrick Dun's and Simpson's Hospitals; University Examiner in Surgery. Dublin: John Falconer. 1893. Pp. 74.

We note with pleasure that Dr. Ball has reprinted from the "Transactions of the Academy of Medicine" the interesting and

exhaustive monograph on this subject, which he brought before the Section of Surgery during the past Session. The subject is first dealt with from a pathological standpoint, the various forms of malignant neoplasm being fully and accurately differentiated. Then follow sections dealing with the diagnosis and the treatment of the affection. As regards medical treatment, a judicious note is sounded in the protest against the injudicious and indiscriminate use, or abuse, of opium in these cases; and, indeed, we might add, in all cases of malignant disease. Surgical treatment naturally falls under two heads—radical and palliative; the former dealing with the total removal of the disease by some of the methods of so-called *excision of the rectum*; the latter mainly concerned with the alleviation of the more distressing symptoms by the performance of *iliac colotomy*. Tables of the results obtained by the author in his own practice of these two operations are given, and will form a useful basis on which an estimate of the mortality, and the results to be hoped for may be built for the guidance of future operators.

Saint Thomas's Hospital Reports. New Series. Edited by DR. T. D. ACLAND and MR. BERNARD PITTS. Vol. XXI. London : J. & A. Churchill. 1893. Pp. 535.

THE twenty-first volume of Saint Thomas & Beckett's Hospital Reports is an excellent one. Besides the usual statistics of a large hospital, it contains eighteen original papers and seven special reports for 1891—medical, surgical, obstetrical, gynaecological, ophthalmic, dermatological, aural. Appended is the Calendar of the Hospital School for 1892-93, in which will be found a most interesting history of the hospital.

Of the original papers three or four deserve special notice. One of these is by Dr. T. Cranstoun Charles on Intermittent Albuminuria. Of the occasional occurrence of the phenomenon in healthy subjects there is now no doubt; but the author denies the assertion sometimes made that a trace of albumen may be detected in all, or nearly all, urines. That albuminuria may exist without the presence of any pathological conditions is proved by results of very many examinations of the urine of healthy subjects. "Capitan found albuminuria in 44 per cent. of the soldiers, and in 41 per cent. of the children he examined; Posner, in 100 ent. of the 70 cases under his care; Chateauberg, in 59 $\frac{1}{2}$ out

of 701, or in 84 per cent.; Leube, in 4·2 per cent. of the healthy soldiers examined by him in the morning, and in 16 per cent. of the evening's urines, especially after the men had marched and paraded many hours; and Grainger Stewart, in 37·5 per cent. in a series of 505 examinations." Dr. Charles' own investigations, continued over fifteen years, revealed albuminuria in 18·1 per cent. of 258 mid-day urine of apparently healthy students; in 6 per cent. of morning urine; and 14 per cent. of evening urine, after moderate drill, of 50 soldiers, from 23 to 38 years of age; and in other cases, for which we must refer to his paper (p. 128). In certain special cases observed by him he was able to trace the temporary albuminuria to anxiety or excessive mental exertion; to interference with the pulmonary circulation by tight lacing; to obstinate constipation; to prolonged muscular exertion; to a diet of peptones. Dr. Charles' experience does not confirm Dr. Grainger Stewart's opinion that the tendency to intermittent albuminuria increases with age.

We recommend to the curious reader, as well as to the practical man, a paper by Mr. Bernard Pitts, one of the editors. It is a History of Transfusion, from the 14th century, when "Pope Gregory VIII. (exhausted by old age) was transfused by a Jewish doctor with the blood of three boys—with the hope that he would be re-juvenated. The Pope died—and so did the boys." "For practical purposes," says Mr. Pitts, "all the advantages to be gained by transfusion may be equally well and more readily obtained by an infusion of a neutral saline, such as a solution of common salt, 3j. to Oj." Abstracts of 21 cases in which transfusion was employed, in St. Thomas's Hospital and elsewhere, are given. In these it is certain that no ill effects resulted from the operation, and the immediate, though not always permanent, benefit was considerable. The procedure in use in St. Thomas's Hospital, which is fully described, is extremely simple and capable of immediate application.

Mr. F. G. Parsons contributes a most valuable paper—a complete scientific description of the human and anthropoid skulls in the hospital museum. These, though only 41 in number, are of great interest, having been supplied from all parts of the world, and being previously undescribed. The measurements of a gorilla's and an ourang's skulls are included. The craniometrical methods employed are fully detailed.

A few words in conclusion on Mr. Milton's paper on Lithotrity:

Mr. Milton, principal medical officer at Cairo, reports 62 cases of calculus, in which he operated by lithotomy in the general hospital there. His object is to "set forth the superiority of lithotomy over all other operations for the removal of stone in the great majority of cases of vesical calculus." In his experience, while simple lithotomy is the best procedure, supra-pubic lithotomy is the worst, in nine cases out of ten; the tenth being best treated by the perineal operation. It must be borne in mind, however, that Mr. Milton's experience is Egyptian, and he cautions us at the outset against the danger of generalising from Oriental practice. Indian surgeons will endorse the conviction he expresses—"that deductions drawn from Oriental experience, be they in chloroform or in cholera, in sanitation or in stone, are almost valueless when applied to Europeans." In connection with this subject we give the following figures from a paper in the *Indian Medical Record*, in which Brigade-Surgeon Lieutenant-Colonel J. Forbes Keith, M.D., gives the result of his experience in the Civil Hospital, Hyderabad (Sindh), for four and a half years:—Lithotomy: 163 men, 204 children under 15 years; mortality, 15·9 and 1·4 per cent. Urethral lithotomy: 449 men, 4·4; 49 women, 2·0; 503 children, 0·7. Perineal lithotomy: 51 men, 5·8; 106 children, 0·0. It should be mentioned, in explanation of the high death-rate of male adults after lithotomy, that in consequence of the insanitary condition of the hospital at the time "erysipelas or gangrene, or both, attacked almost every adult operated on."

Przeglad Chirurgiczny pismo poswiecone Chirurgii, Oftalmologii, Otiatryi, Laryngologii, Akuszeryi, Ginekologii, Syfilidologii, i Dermatologii. Tom. I., Zeszyt I. Warzawa. 1893. 8vo. Pp. 173.

THIS is the first number of an illustrated Polish periodical which promises well. In tenderness to the few members of our profession to whom the Polish language is not familiar, a *résumé* in French of the contents of the original articles is supplied. It will be seen from the title-page that the editor, Dr. W. H. Krajewski, has taken all medical and surgical knowledge for his province. In the latter part of the number 26 pages are devoted to brief summaries (in French) of papers which have appeared in other Polish journals. It is intended to issue quarterly fasciculi,

if possible. There are eight original papers in this opening number. One of these, by Dr. Jasiuski, is on Hypertrophies. He reports two cases of "Marie's disease," commonly called acromegaly, and he wants us to call it "gigantacrie," but we decline. In one of these he notes symptoms presumptive of an affection, possibly hypertrophic, of the pineal gland, especially irregularities in the visual field and constant headache. In general, he does not attribute hypertrophies to lesions of the vascular system as a primary cause.

We wish our new bilingual contemporary success.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. Ninety-fourth Annual Session, held at Baltimore, Maryland, April, 1892; also Semi-Annual Session, held at Rockville, Md., Nov., 1891. Baltimore. 1892. Pp. 124.

It is much to be regretted that an association which has lived for 94 years, should be in want of the necessaries of life in its old age; but so it seems to be with the Medical and Chirurgical Faculty of the State of Maryland. An explanatory statement in this meagre volume informs the world that, "on account of the scarcity of funds" none of the papers read can be printed. Only the Presidential Address and the Annual Oration, with an abstract of Proceedings and Reports of Committees, could be afforded, and from this slender programme the Oration had to be omitted, owing to the impossibility of extracting the manuscript from the annual orator. The President's Address makes amends for deficiencies. Dr. Welch, Professor of Pathology in the Johns Hopkins University, chose for his subject "The Etiology of Acute Lobar Pneumonia, considered from a Bacteriological Point of View," and his 29 octavo pages seem to say all that is to be said at present upon an important question.

The Reports, with one exception, are not of general interest. The increase of blindness in the United States is causing much uneasiness, and a committee was appointed "to devise means for lessening the amount of blindness from curable diseases" in the city of Baltimore and the State of Maryland. The committee confined its investigations to ophthalmia neonatorum, and came to the conclusion that "the work assigned it must be accomplished by an educational process." Accordingly a circular admonitory

letter was sent to every midwife in the city, and a copy to every physician.

We learn from a paper of Dr. Lucien Howe's, of Buffalo, printed in the *Journal of the American Association*, 25th Nov., 1893, that other States of the Union are very far in advance of Maryland in this important matter. New York, Maine, and Rhode Island have legislated on the subject. In 1890 the following Act for the Prevention of Blindness was passed unanimously:—

“SECTION 1.—Should any midwife or nurse having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse so having charge of such infant, to report the fact in writing, within six hours, to the health officer or some legally qualified practitioner of medicine, of the city, town or district, in which the parents of the infant reside.

“SEC. 2.—Any failure to comply with the provisions of this Act, shall be punishable by a fine not to exceed one hundred dollars, or imprisonment not to exceed six months or both.

“SEC. 3.—This Act shall take effect on the first of September, eighteen-hundred and ninety.”

Subsequently, in 1892, this law was stiffened by the incorporation of the clause following, and by the further provision that the offence is punishable as a felony:—

“. . . Being a midwife, nurse or other person having the care of an infant within the age of two weeks who neglects or omits to report immediately to the health officer or to a legally qualified practitioner of medicine of the city, town or place where such child is being cared for, the fact that one or both eyes of such infant are inflamed or reddened, whenever such shall be the case, or who applies any remedy therefor without the advice, or except by the direction of such officer or physician, &c.”

The legislation of Maine and Rhode Island is similar.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. Ninety-fifth Annual Session, held at Baltimore, Maryland, April, 1893. Also Semi-Annual Session, held at Easton, Md., Nov., 1892. Pp. 111.

We are glad to perceive that the financial clouds which hung over this ancient organisation, when the report of the ninety-fourth

session was published, are being gradually dissipated. It is still, however, unable to print the papers read at its meetings; by which incapacity the profession is the poorer. Their titles promise well, and there is hope that this year will see the papers of this meeting in print. In this volume the Committee on Preventable Blindness presents a Report, in which the irreparable mischief due to ignorance and apathy on the part of mothers, midwives, and even of medical men, is illustrated by the statistics of the Presbyterian Eye and Ear Hospital. Legislation regulating the practice of midwives and enforcing their responsibility for neglect is suggested.

The President's Address is devoted to the "Treatment of Facial Neuralgia by Excision of Intra-cranial portions of the Fifth Nerve." The President is Dr. Tiffany, Professor of Surgery in the University of Maryland. There is, besides, the Annual Address, on "Intra-peritoneal Hæmorrhage," by Professor Reginald H. Fitz, M.D.

Atlas of Clinical Medicine. By BYROM BRAMWELL, M.D., F.R.C.P. Edin.; Assistant Physician to the Edinburgh Royal Infirmary, &c., &c. Volume II, Part 3. Edinburgh: T. & A. Constable. 1893.

THIS part of the now-celebrated "*Atlas of Clinical Medicine*" embraces four distinct subjects of great interest—exophthalmic goitre, acromegaly, general exfoliative epidemic dermatitis (Savill), and unilateral hypertrophy of the face. As it also brings the second volume to a close, it contains, in addition, an index, title-pages, and a table of contents. There are no less than nine plates illustrative of the subject-matter, as well as a very striking coloured lithographic representation of old age—"Senectus ipsa morbus."

The section on general exfoliative epidemic dermatitis is based on Dr. Thomas D. Savill's account of an outbreak which occurred chiefly in the western district of London during the summer and autumn of 1891. Dr. Savill defined the disease in the following terms:—"A contagious malady in which the main lesion is a dermatitis, sometimes attended by the formation of vesicles, always resulting in desquamation of the cuticle, usually accompanied by a certain amount of constitutional disturbance, and running a more or less definite course of seven or eight weeks."

The report of a very interesting case of unilateral hypertrophy

of the face is from the pen of Dr. D. W. Montgomery, Professor of Diseases of the Skin and Syphilis, Post-Graduate Department of the University of California.

Appended to the article on Acromegaly, or "Marie's Disease," is a clinical record of a case of the disease occurring in a giantess, aged 28; height, 6 ft. 2 in.; weight, 24 st. 8½ lbs.

The foregoing brief summary of the contents of this part of the *Atlas* will show that Dr. Byrom Bramwell's pen has not lost its cunning, nor has the talented author exhausted his stores of clinical wealth.

On Hail. By the HON. ROLLO RUSSELL, F.R. Met. Soc. London: Edward Stanford. 1893. 8vo. Pp. 224.

THE subject of hail-formation and of hail storms is so closely related to that of climate, which in turn wields such an influence over human health and even life, that no apology is needed for noticing the work before us in the pages of a scientific medical journal.

The Hon. Rollo Russell has focussed in the eight chapters of which his book consists nearly everything that is known about hail. In the appendices, also, several important topics are briefly discussed—such, for instance, as the cold produced by radiation from the upper strata of clouds and fog, dust-particles, and the form of ice-crystals, types of hail storms, general weather-conditions in certain hail storms, and storms of hail and rain produced by mixture of winds. On this last point Mr. Russell finds himself at issue with many able meteorologists, such as Wettstein, Hann, von Bezold, and Waldo, all of whom believe that mechanical mixtures of masses of air of differing temperatures have little influence in causing condensation and rain. We confess that we sympathise with the author when he says "that theory may have omitted to take into account some potent influences which are concerned in the production of heavy falls of rain and hail, and that, with the aid of these influences, a mixture of winds is actually in many cases an important cause of precipitation." (P. 224.)

The subject-matter of the work is at times strung together in a somewhat haphazard manner, but this is perhaps due to the fact that the book is largely a compilation—as indeed the author himself admits in his dedication "to G. J. Symons, F.R.S.,

F.R. Met. Soc., at whose suggestion the work was undertaken, and who kindly supplied much of the material on which it is based."

The author concludes, as the result of a wide experience, that the clouds in which large hail has its origin are commonly at a great height, between 15,000 and 40,000 feet or higher. These clouds are the result chiefly of expansion and refrigeration of warm humid air, of the sudden mixture of masses of air greatly differing in temperature and vapour tension, and of free radiation. The nucleus of a hailstone consists of a snowflake, pellet, or spicule, which falls from the uppermost cloud. The snowflake, pellet, or spicule is electrified as a result of condensation, and as it falls attaches particles of ice and globules of water below the freezing point to itself, the particles arranging themselves commonly in a stellate form or concentrically round the nucleus. The variety of form of the primitive kernel is great, and consequently hailstones of many different shapes may be met with. The ordinary top-shaped hailstone is produced by the lower side growing more quickly than the upper, as it came into contact with more particles, and since the impact is most forcible on the lower side, the ice of the spheroidal base is the hardest.

Mr. Russell's book is illustrated by two photographs of hailstones (actual size) taken after a terrific thunderstorm at Richmond, Yorkshire, on July 8, 1893, by Mr. H. J. Metcalfe, photographer, High-row, Richmond, Yorks. Some of the hailstones figured have a diameter of two inches.

A Practical Treatise on Diphtheria and its Successful Treatment.
By BROWNLOW A. MARTIN, A.B. and M.B. Dub.; L.R.C.S.I.; formerly Civil Surgeon H.H. the Nizam's Service. London : Baillière, Tindall, & Cox. 1894. Pp. 32, with 43 pages of advertisements.

THE point of chief importance in this little book is the description of the author's local treatment of diphtheria. This consists in the insufflation of sulphite of magnesium on to the pharyngeal surfaces. In mild cases he uses this remedy two or three times a day ; in more severe attacks every one, two, or three hours, according to circumstances. Under its use attacks, if treated in the early stage, are aborted—when patches of membrane have formed the author has seen them disappear in from two to three days ; and

the worst case has not a trace of throat complications in a week. Another advantage is that when it is used no sequelæ follow. Notes are given of five cases which were treated by this method.

The rest of the work treats of the pathology, symptoms, &c., of diphtheria. For our part we regret the author did not leave out most of this, and insert in its place full notes of a very much larger number of his cases. Then we could have formed a much better opinion of the efficacy of insufflations of magnesium sulphite.

Il Poliklinico : Periodico di Medicina, Chirurgia e Igiene. Diretto dai PROFESSORI GUIDO BACCELLI, Direttore della R. Clinica Medica di Roma, e FRANCESCO DURANTE, Direttore del R. Instituto Chirurgico di Roma. Num. 1 e 2. Roma. Dicembre, 1893. Pp. 72.

We have received the first fasciculus containing two numbers of this new periodical, published in Rome. It sees the light at a favourable time—on the eve of the assembling in Rome of the eleventh International Medical Congress. The printing, paper, and arrangement of matter, leave nothing to be desired. The original articles are excellent and the miscellaneous contents well selected and interesting. One of the medical papers is the first part of an essay on hemiatrophy of the tongue, in which cases recorded by English, German, and French authorities (beginning with Fairlie Clarke, in 1873) are brought together by Dr. Ascoli. In the surgical section will be found a statistical paper by Dr. Durante (one of the editors) on resection operations for tuberculous disease; and Professor Antona, of Naples, describes three cases of renal surgery. This fasciculus contains three original papers on medical, and four on surgical subjects. Our new contemporary deserves, and will, we trust, command success.

Transactions of the Association of American Physicians. Eighth Session, held at Washington, D. C., May 30, 31, and June 1, 1893. Volume VIII. Philadelphia, 1893. Pp. 402.

THE Association of American Physicians is a very select body. There are said to be 118,453 "physicians" in the United States, of whom one hundred only can be members. Even this meagre number was not complete when the volume before us was

published. The claims of candidates to the honour of membership are vigorously scrutinised, and at the annual ballot one black ball in four excludes. Membership is forfeited by absence from three successive annual meetings, but only 47 attended the 1893 assembly. So far as we outsiders are concerned, there is no reason to complain of the result of this peculiar organisation. The average value of the published papers is always high. In this ninth volume of *Transactions* there are thirty original papers, all of which may be read with profit. Two or three deserve special notice. Dr. W. Gilman Thompson, of New York, contributes an elaborate Study of Addison's Disease and of the Adrenals. Lewin had tabulated 684 cases reported up to the latter part of 1891. To these Dr. Thompson adds 73, making a total of 757—a number which may be considered to justify conclusions. Three of the cases occurred in the author's own practice and were completed by autopsies, and three were discovered by him in the records of two New York hospitals. He has also collected previously unreported records of 40 cases in which autopsy revealed lesion of the adrenals, though no symptoms of Addison's disease had been observed. Examination of these statistics clearly show that the pigmentation characteristic of this disease not unfrequently occurs while the adrenals are normal, and that "every variety of adrenal lesion which has ever been found associated with Addison's disease, has also occurred without giving rise to any symptom whatever." Dr. Thompson concludes, from his careful study of the subject, that Addison's disease depends on irritation of the abdominal sympathetic nerves due either to direct lesion or to disease of the supra-renal capsules; that in 80 per cent. of the cases tuberculous disease of the adrenals is the cause of such irritation; that merely functional disorder of the sympathetic system, proceeding from diseased adrenals, is capable of producing the symptoms; and, that in not more than 20 per cent. of the cases, the supra-renal capsules are affected by diseases other than tuberculosis, or are normal, the sympathetic system being primarily and alone diseased.

A short paper by Dr. F. Forchheimer, of Cincinnati, is devoted to establishing and explaining the dependence of chlorosis upon changes taking place in the small intestine. The connection was pointed out so far back as 1887 by the late Sir Andrew Clarke in a paper in *The Lancet* on the "Anæmia and Chlorosis

of Girls, &c." Myxoedema is the physician's newest toy, as symphyseotomy is the surgeon's, and four papers in this volume are taken up with it, besides one on Sporadic Cretinism in America. Endemic cretinism does not appear to exist in Canada; or in the United States, with the possible exception of New Mexico. Professor Osler, of Baltimore, the author of the last paper, gives details of eleven cases of sporadic cretinism, and of one case in which myxoedema followed complete extirpation of the thyroid. This case is, he says, "happily unique in American surgery."

One other article in this interesting volume we must briefly notice. We have sometimes wondered when coffee would come to be attacked by a section of that numerous class of persons who

Compound for sins they are inclined to
By damning those they have no mind to.

Alcohol (be it never so dilute), tobacco, tea, opium, cannabis, coca, each has its enemies amongst people who love it not, or those who have loved it not wisely but too well. Professor Norman Bridge, of Chicago, opens a campaign against coffee, but the attack is temperate and mild. He admits that coffee "taken in moderation as a habitual part of the daily dietary, probably, to most adult persons, does no harm." With others, however, it is different; and in Dr. Bridge's experience, biliousness, insomnia, heartburn, waterbrash, acid dyspepsia, palpitation of the heart, cephalgia, migraine, dizziness, are due to the habitual use of coffee. May we infer from the following passage that the Professor smokes and likes not coffee?—"Tobacco," he says, "is accused of producing dire effects upon the system, and it often does, but it is speaking temperately to say that among the patients who have heretofore applied to me for advice, a larger proportion have had symptoms of disease produced by coffee than by tobacco."

The Charlotte Medical Journal. A Monthly Journal of Medicine and Surgery. E. C. REGISTER, M.D., and J. C. MONTGOMERY, M.D., Editors and Publishers. Charlotte, N.C. Pp. 100.

We have received the first number of the fourth volume of this periodical published in Charlotte, North Carolina, a town which twenty years ago sheltered only 3,000 inhabitants. It must

have waxed since those days, since it is able to maintain a medical journal of its own, well edited, well printed, and endowed with a dense and healthy integument of advertisements. The contents are of the usual character, the opening paper only appearing to demand special notice. In this, contributed by Dr. Byers, calomel in minute hourly doses (one-sixth of a grain), combined with bicarbonate of soda, is strongly recommended as a treatment for the early stage of enteric fever until free action of the bowels has taken place. "This is repeated every day or every second day during the first ten days' sickness as the indications demand, unless diarrhoea supervenes, which is a very rare occurrence, when the remedy is suspended for a time." High authority is cited in support of this treatment.

Mathews' Medical Quarterly: A Journal devoted to Diseases of the Rectum, Gastro-Intestinal Disease, and Rectal and Gastro-Intestinal Surgery. JOSEPH M. MATHEWS, M.D., Editor and Proprietor; Professor of Surgery; Clinical Lecturer on Diseases of the Rectum, Kentucky School of Medicine, &c. Louisville, Ky. Pp. 190.

THIS is the first number of a highly specialised medical and surgical periodical. It contains 19 original papers besides the usual reports, extracts, reviews, &c. The editor has been for seventeen years a specialist for diseases of the rectum; his contributors hail from all parts of the United States, and papers by four European surgeons are promised for the April number. If "Mathews' Quarterly" fulfils the promise of its healthy babyhood, it will be a valuable addition to medical literature.

CREMATION IN NEW YORK.

A CREMATION company in this city recently celebrated its one thousandth combustion. We do not know the exact nature of the celebration, except that there were speeches and flowers; the customary addition of champagne and a cold collation was probably admitted. The company has just finished a new Columbarium. The statistics of its work are interesting. Up to the present time 1,010 persons have been cremated, classified as follows: 650 men, 270 women, 53 boys, and 35 girls. Of the total number, only 835 were native Americans. The others were of many nationalities. Germany led with 510, England was next with 34, and other countries were represented by one or a few.—*Medical Record.*

PART III. SPECIAL REPORTS.

REPORT ON PRACTICE OF MEDICINE.

By HENRY T. BEWLEY, M.D., Univ. Dubl.; F.R.C.P.I.;
Assistant Physician to the Adelaide Hospital; and Lecturer
on Medieal Jurisprudence in Trinity College, Dublin.

- I. NEW TREATMENT OF TUBERCULAR PERITONITIS.
- II. DIAGNOSIS OF CEREBELLAR TUMOURS.
- III. ADDISON'S DISEASE.
- IV. THYROID EXTRACT IN RETINISM.
- V. THYROID GLAND IN PSORIASIS.
- VI. THE TREATMENT OF PERFORATED GASTRIC ULCER.
- VII. BREAD SUBSTITUTES IN DIABETES.
- VIII. HYPODERMIC ALIMENTATION.
- IX. DESQUAMATIVE ENTERITIS.
- X. THE TREATMENT OF HEADACHES.
- XI. THE QUESTION OF OPERATION IN PULMONARY TUBERCULOSIS.
- XII. THE OPERATIVE TREATMENT OF PULMONARY DISEASE.
- XIII. SUB-MEMBRANOUS INJECTIONS IN DIPHTHERIA.
- XIV. THE NATURE AND TREATMENT OF ANGINA PECTORIS.

I. NEW TREATMENT OF TUBERCULAR PERITONITIS.

THAT the opening of the abdomen in cases of tubercular peritonitis has been found beneficial is generally admitted; it is, however, not easy to explain how this treatment does good. Various theories have been proposed to account for it. The improvement that follows the operation does not depend on the use of antiseptics; in many cases none have been used, and the result has been satisfactory. One of the chief points wherein the operation with free opening differs from ordinary tapping with trocar and canula is that in the former air is admitted into contact with, at least, portions of the peritoneum, while in the latter it is, as a

rule, excluded. This consideration led Prof. Nolen to treat some cases of tubercular peritonitis by the injection of sterilised air into the peritoneal cavity—after removing the ascitic fluid. The air is sterilised by being driven through a cylinder filled with sterilised cotton wool, and this is connected to the canula by means of carefully-cleaned tubing. When the air has been introduced the greater part of it is, after five minutes, removed by aspiration.

Dr. Nolen employed this method of treatment in three cases. In the first case—a child, eight years old—the abdomen had been enlarged for several months. The temperature was constantly raised; there was ascites. In February, 1892, some clear fluid was drawn off, but the abdomen rapidly swelled again. In March the fluid was again removed, and air was driven in and again aspirated. The child suffered no pain or other ill effect. The next day there was moderate meteorism, which soon passed away after a purgative. A month after the child left hospital, and three months after the injection of air the child looked healthy and was free from fever; it had increased in weight, and there was no fluid in the abdomen. Up to the date of the report the child remained well. The second case—a woman, aged twenty-four—had been twice tapped without any good result. She was again tapped and air injected; after this the ascites did not recur. She died two months after from tubercular ulceration of the intestine. The third case—a patient, aged thirty-one—had been ill for a year suffering from enlarged abdomen, fever, and swollen cervical glands. The same treatment was employed; six weeks after the fluid had not re-accumulated. The advantages claimed for this treatment are—no anaesthesia necessary; no incision; no possibility of septic infection.—*Berlin klin. Wochenschrift*, 1893, No. 34; and *Practitioner*, December, 1893.

II. THE DIAGNOSIS OF CEREBELLAR TUMOURS.

In a paper on this subject based on considerable personal experience, Dr. Ashby describes the following symptoms:—

Headache, either frontal or occipital. In one case the pain was always referred to the right occipital region, and the boy would often be found asleep with his hand pressed on this spot. A large sarcomatous tumour was found in the right lobe of the cerebellum. The pain is generally dull, but sometimes acute like that of meningitis.

Vomiting fitful, and uncertain, and rarely troublesome when the patient is at rest in bed.

Internal squint, occasionally double; an early and frequent symptom. It is due to a paresis of the sixth nerves.

Optic neuritis, a common early symptom.

A peculiar gait or walk, due to more or less weakness of the legs. A special "cerebellar ataxia" has been described. Dr. Ashby is sceptical as to its existence; "the gait of a child with cerebellar tumour is very much that of a child learning to walk; there is a good deal of clumsiness and a great readiness to fall, but this is due to a weakness or paresis of the limbs and not to ataxia. When there is a spastic rigidity with an over-action of the gastrocnemius group and of the flexors of the knee there is necessarily a clumsy gait with a tendency to fall forward. I have never been able to satisfy myself that in any given case, apart from the results of a spastic rigidity, there was a tendency to fall on one side or in any given direction."

Tendon-reflexes generally increased; occasionally diminished or absent.

Enlargement of the head common; it may occur in children up to the age of six or seven years.

Eclampsia not uncommon, consisting of tonic spasms; there is retraction of the head, rigidity of the limbs, and frequently opisthotonus.

Facial paralysis and *nystagmus* occasionally present.

In the later stages *rigidity of the limbs and head, muscular wasting*, and *trophic changes*, such as bedsores.

As to the mode of causation of these symptoms, Dr. Ashby does not believe them to be due to the destruction of a portion of the cerebellum; "they are the symptoms produced by a gradually-increasing dropsy of the ventricles, due to the tumour stretching the tentorium cerebelli, and obstructing the return of blood from the veins that drain the ventricles, and which empty themselves into the straight sinus. If the cerebellar tumour produces any symptoms, *per se*, they are masked by those produced by the hydrocephalus. In connection with this we may bear in mind that cases have been reported in which there has been a congenital absence of one half of the cerebellum, and in which no symptoms have been reported during life. As a result of the obstruction of the *venae Galena*, fluid is pent up in the lateral ventricles and also in the third and fourth, and the surrounding parts are compressed.

All the ventricles become dilated, the aqueduct of Sylvius becomes large enough to admit the forefinger, and the pons is flattened. The sixth nerve is compressed beneath the pons, giving rise to internal strabismus, and the facial may be compressed also. Pressure of the fluid on the motor tracts gives rise to the paresis of the limbs, and consequently to staggering gait and at a later stage to spastic rigidity. The headache is presumably caused by stretching of the tentorium."

As to the differential diagnosis between cerebellar tumour and chronic basal meningitis, the temperature might help, there being in all probability an evening rise of a few degrees in meningitis, while the presence of optic neuritis would favour the diagnosis of tumour. In chronic simple hydrocephalus the case is usually very chronic, and optic neuritis rarely occurs.

In the case of tumours of the middle lobe of the cerebellum, the most prominent symptoms will probably be those caused by direct pressure on the floor of the fourth ventricle; thus in one case there was retraction of the head and neck coming on in paroxysms and accompanied by severe pain.

The paper ends with the notes of three typical cases of tumour of the lateral lobes of the cerebellum.—*Practitioner*, Dec., 1893.

III. ADDISON'S DISEASE.

In a very complete paper on this subject, Dr. W. Gilman Thompson (New York) remarks that disease of the adrenals, occurring as the sole lesion observed of any importance, is recorded in nearly one half of all cases, while in a further large number it accompanies or is secondary to lesions elsewhere. But we are obliged to abandon the earlier theory that Addison's disease is aetiologically dependent on adrenal lesion in view of the fact that many typical cases have lately been observed with well-marked bronzing, in which the adrenal bodies were entirely normal. Moreover, it is well established that every variety of adrenal lesion which has ever been found associated with Addison's disease has also occurred without giving rise to any symptoms, whatever.

Forty cases are briefly referred to in which the adrenals were diseased, but there was no bronzing or other symptom.

Careful analysis of the symptoms recorded in all cases of Addison's disease shows considerable uniformity in the occurrence of functional or other disorders of the alimentary canal and of the

circulation, and suggests very forcibly the existence of a common cause to be found in disturbance of the abdominal sympathetic system. These symptoms—nausea, irritable paroxysmal vomiting and diarrhoea, localised lumbar and epigastric pain, enfeebled pulse, mental apathy and prostration—point to a lesion, not necessarily of the semi-lunar ganglion alone, but at times of the gastric, hepatic, or mesenteric plexuses.

The research of the past four or five years is constantly bringing to light an increasing proportion of cases in which the condition of sympathetic nerve structures is shown to be abnormal. The ganglia are often excessively pigmented, sometimes haemorrhagic. They may exhibit fatty degeneration; swelling, and even caseation and suppuration; their nerve-cells are atrophied; the nerves have a thickened perineurium, and there may be degeneration of the axis cylinders. Among the 30 cases most recently examined 27 had such lesions.

Thompson, therefore, comes to the following conclusions:—

1. Addison's disease is a condition arising from and dependent upon irritation of the abdominal sympathetic nerves through lesions of themselves, their ganglia, or diseased suprarenal capsules.

2. In the great majority of instances (fully 80 per cent.) the disease originates as a primary or secondary tuberculosis in the adrenals; and the sympathetic system is either involved by extension of pathological processes, or is functionally disturbed and irritated through the intimate anatomical connection existing between the adrenals and the relatively large number of nerves which they contain.

3. Actual lesion of the sympathetic system, which far more common than heretofore supposed, is not necessary to produce the varied symptomatic phenomena of the disease. Functional disorders through irritation conveyed from the adrenals may sometimes cause all the symptoms—just as in chorea and many of the conditions of aggravated hysteria and other functional nervous disorders we are often unable to find definite lesions.

4. In a certain proportion of cases (not over 20 per cent.) the adrenals are affected by some other lesions than those of tuberculosis; or else they remain normal (in 12 per cent.) and the sympathetic nerves and ganglia are alone diseased.—*American Journal of Med. Sciences*, October, 1893.

**IV. CRETINISM TREATED WITH INJECTIONS OF THYROID EXTRACT,
AND WITH FEEDING WITH RAW GLANDS.**

As the thyroid treatment of myxoedema seems by this time quite settled, the following case of cretinism treated in the same manner by Dr. E. Carmichael (Edinburgh) is of interest. The child was over five years old, but looked like an infant—features broad and massive; skin dry and harsh; abdomen prominent, with protruding umbilicus; appetite capricious, with obstinate constipation; temperature subnormal. Its intelligence was very feeble; rate of growth was one inch yearly. Treatment was begun in April, 1892, injections of 10 minims being given at intervals of from seven to fourteen days. In October feeding with raw glands was employed instead, about one lobe being administered in cold beef-tea every week. The result of the treatment is thus described:—“After the first few injections the appearance of the child had completely changed—there was a marked diminution in the size of the abdomen, so that a bodice which fitted before the commencement of the treatment now overlapped by four or five inches. The thick lips and alæ nasi were now of normal size, and the skin was pliant and soft. In October the child began to walk, and soon was running about. Marked improvement in intelligence was seen in many little actions.

“During the nine months the child has grown four inches; the supraclavicular pads have quite disappeared; the appetite has improved, and the bowels are regular. The improvement is such that a friend and regular visitor at the house, who had been absent for some weeks, on seeing the child did not recognise her, and thinking she was a stranger, asked whose child she was.”—*Lancet*, 1893, No. 3,629, and *American Journal Medical Sciences*, June, 1893.

V. THE TREATMENT OF PSORIASIS BY MEANS OF THYROID EXTRACT.

Dr. Byrom Bramwell, in a paper read before the British Medical Association, August, 1893, states that he observed very definite effects on the skin resulting from the internal administration of thyroid glands in myxoedema—viz., profuse desquamation, especially on the palms and soles. This observation induced him to try this mode of treatment in psoriasis, and his results are remarkable.

The first case, a girl aged eighteen, had been affected for nine

months, and the eruption had become almost universal. In many places the eruption presented an angry, red appearance, the crusts being of a dark purple colour; the skin behind the ears was moist and cracked. On February 4th thyroid feeding was commenced, a quarter of a raw gland being minced and administered daily. On February 10th distinct improvement was noted. On February 14th the eruption over the back was separating and being shed in the form of large scales, some of them at least an inch in diameter, leaving a pale, smooth, and healthy-looking skin underneath. On March 1st the eruption had in great part disappeared. In April, an arrest of improvement having taken place, thyroid feeding was stopped, and arsenic given; but in a few days a marked change for the worse was remarked. The arsenic was stopped, and thyroid resumed, 15 minims of Brady & Martin's Extract being administered once a day. She again improved greatly, and left hospital on June 6th, having for several weeks been absolutely well.

Case II. had suffered from very severe psoriasis for seven months. She was treated with the extract as above, 5 minims daily being given at first, and subsequently 10 minims. After the first dose she stated her arms were less stiff and painful. She improved rapidly, and in two months was quite well, and remained so up to the time she was last seen, two months after leaving hospital.

In Case III. the disease had lasted for six and a half years, and was very extensive. The mode of treatment was the same as in the last case. Within three weeks the patient said the eruption was better than at any time during the past six years, and six weeks after the treatment was begun she was almost well. She, however, then became somewhat worse, and at the time of writing seemed rather going back, though much better than before the treatment.

The paper is furnished by several illustrations of the cases, showing the marked improvement which took place.—*British Medical Journal*, Oct. 28, 1893.

VI. THE TREATMENT OF PERFORATED GASTRIC ULCER.

Barling reports three cases in which he had operated. The first case was that of a servant girl, aged twenty-two, who, while apparently in her usual health, was suddenly seized with intense abdominal pain, almost fainted, and then vomited. When seen ^{she} presented the appearance of acute peritonitis, and rapidly

grew worse. Six hours after the sudden seizure the abdomen was opened in the middle line below the umbilicus, two or three pints of thin sero-purulent fluid escaped, but no food or faeces. Intense peritonitis was found to exist, but no cause could be found to account for it, only the lower part of the abdomen being examined. On account of the patient's state it became necessary to close up the abdomen, which was done, the peritoneal cavity having previously been well washed out. The girl died twenty-four hours after the operation. A perforating ulcer was found on the anterior wall of the stomach.

In the second case, that of a girl aged twenty, there was a history of some years' indigestion. Sudden pain occurred, but she did not feel very ill, and did not come to hospital for two days. Next day she was rather collapsed; pulse, 126; abdomen tense, tympanitic, and very tender; no sickness. On the following day (four days after the onset of symptoms) she was much worse, and clearly was suffering from acute peritonitis. The abdomen having been opened, a perforation half an inch in diameter was found in the anterior wall of the stomach. This was closed by silk and sutures (Lembert's method), and the abdomen washed out. There was much collapse, and she died thirty hours after. Well marked peritonitis was found, but sutures had securely closed the ulcer.

The third patient, a servant aged twenty-nine, had also suffered from indigestion. She was suddenly seized with severe abdominal pain, faintness, and vomiting, with rigid and tender abdomen. Gastric perforation was diagnosticated, and no food given by the mouth. In a few days she improved greatly; the abdomen became normal, and some food was allowed. After about ten days some swelling, with hardness and tenderness, was noticed in the left hypochondrium. This diminished, and her condition improved, till at the end of three weeks she again became much worse. Pulse, 160; temperature, 103°; respirations, 60; intense tenderness in the swollen area; an incision was made over this. The omentum was adherent; on separating adhesions the finger passed backwards and upwards towards the splenic end of the stomach, where a small abscess containing fetid pus was found. The patient's condition being very bad a glass drain was passed in, and the operation concluded. She gradually improved; the drain was removed after six weeks, the wound healed, and after about three months she recovered completely.

The points to which Dr. Barling especially calls attention are these—1. An ulcer may be quite latent till it perforates. 2. Cases of perforation vary extremely in acuteness and intensity. In the third case the escape of stomach contents must have been very limited. 3. The mortality of gastric perforation (without operation) is at least 95 per cent. 4. An operation should be done at once in all cases where perforation is diagnosed.—*Birmingham Medical Review*, Sept., 1893.

VII. BREAD SUBSTITUTES IN DIABETES.

Dr. Robert Saundby (Birmingham), in a paper on "Bread Substitutes in Diabetes," states that he has almost entirely given up the use of gluten bread, because (1), it contains nearly 30 per cent. of starch; (2), it is very unpalatable; (3), it is very expensive. He has found it impossible to get bakers to make Aleuronat bread (recommended by Prof. Ebstein), at reasonable prices; besides, this bread must contain some starch. In cases in which it is necessary to stop all starch he now recommends Clark's Starchless Biscuits; he says they are well made, palatable, and free from starch. They are, however, somewhat expensive. He also recommends cakes made of ground almonds, with or without desiccated cocoa-nut. The following is his receipt:—1 lb. of ground almonds, 4 eggs, 2 tablespoonfuls of milk, and a pinch of salt. Beat up the eggs, and stir in the almond flour; divide in 12 flat tins; bake in a moderate oven for about 45 minutes. The cakes when baked weigh about $1\frac{1}{2}$ lbs., and cost about 1s. 9d. Ground almonds may be obtained in 7 lb. tins from Messrs. Pumphrey, Sugar Mills, Stockton-on-Tees. Cocoa-nut cakes are thus prepared:— $\frac{1}{4}$ lb. finest desiccated cocoa-nut, $\frac{1}{2}$ lb. ground almonds, 6 eggs, $\frac{1}{2}$ teacupful of milk. Beat up the eggs and milk, and stir in the cocoa-nut and almond flour; divide into 16 flat tins, and bake for 25 minutes in a moderate oven. Two additional eggs may replace the milk with advantage. Desiccated cocoa-nut may be obtained in tins of 120 lbs. from Messrs. Lyon & Co., Bath Passage, Birmingham, at the rate of 4*d.* per lb. Such cakes keep very well for a week.

Dr. Saundby also calls attention to the value of Iceland moss used in puddings and shapes, as an addition to the dietary of diabetics.—*Birmingham Med. Review*, May, 1893.

VIII. HYPODERMIC ALIMENTATION.

An interesting account of this unusual procedure is reported by Dr. F. M. Caird, Edinburgh. A man was admitted to the Royal Infirmary, suffering from stricture of the oesophagus. He had lost much flesh, weighing only 7 st. 10 $\frac{1}{2}$ lb., though he was 5 ft. 10 $\frac{3}{4}$ in. high; he was extremely weak. He had been nourished per rectum, and also constantly sipped liquid foods; but in spite of this he was steadily growing worse, as very little of the liquids swallowed passed the stricture, the greater part being returned.

Gastrostomy was proposed, but the patient refused to submit to the operation on account of his great weakness. "I thought," says Mr. Caird, "that we might sustain his strength a little more, and even improve him sufficiently to warrant gastrostomy by hypodermic alimentation. Sterilised olive oil was accordingly injected into the subcutaneous tissues. The house-surgeon found that intra-muscular injections gave rise to no discomfort, and these were therefore used, the gluteal region being selected. For a week the patient received three or four ounces of oil in this fashion, and under the treatment he experienced benefit. It is true he did not appreciably increase his temperature, but his general condition, more especially mental, distinctly gained. He now gladly welcomed the operation of gastrostomy." However, his strength was not equal to the strain, and he died suddenly six days after the operation. It was found at the autopsy that perforation had occurred, an ulcer having given way. Dr. Caird adds—"There seemed to be no limit to the amount of oil which the patient could tolerate. It gave rise to no inconvenience, not even pain, when injected into the tissue of a muscle, and it was rapidly absorbed. Sugar was occasionally combined with the oil. None of the skin punctures inflamed."—*Edinburgh Medical Journal*, Sept., 1893.

IX. DESQUAMATIVE ENTERITIS.

Dr. E. M. Light has published a complete and interesting paper on this rare disease, and illustrated it with descriptive notes of several typical cases. The characteristic of the disease is the passage of thin tubular casts of the intestine, true cylindrical sheaths, together with membranous shreds and flakes of varying form, and of gray or yellowish-white colour. The length of these casts varies from an inch up to, it is said, five feet. When floated

in water they often assumed the curve of an intestinal coil. Transverse thickenings are sometimes observed which are probably moulds of valvulae conniventes. These casts would seem to have been formed in layers, with particles of faecal matter interposed between the laminae. *Microscopic examination* shows the greater part of the casts to consist of cylindrical epithelium and of polymorphous cells, imbedded in a transparent and structureless matrix. The cylindrical epithelium looked thin and deformed, some cells being in a state of disintegration. The upper part of the cell formed a theca, and gave the appearance as if the contents had escaped from it, leaving only a shell behind; a few goblet cells were also to be seen. These cylindrical cells were most commonly arranged in rows; it seemed as if there had been an epithelial hyperplasia, the cells by their abundant growth having compressed each other, and afterwards the mass having been exfoliated. Chemical examination showed a considerable amount of albumen, a little fibrin, and a mere trace of mucus.

With regard to the symptoms produced by this disease, the most common one is *pain* in the abdomen, colicky in nature, most severe during or just before the expulsion of the membranes. The pain is accompanied by abdominal tenderness, headache, nausea, and constipation. Such an attack ends with the expulsion of the membranous casts. This process may go on continuously for an indefinite time, but more commonly the attacks come in paroxysms at irregular intervals. The attacks may, or may not, be accompanied by some amount of fever.

If these attacks continue from time to time, the general health begins to suffer, but there are no other characteristic symptoms.

The cause of this affection is unknown; most cases can be cured by careful treatment. The appropriate treatment consists in rest in bed; the avoidance of such articles of food as are likely to leave much undigested residue in the intestine; opium; and enemata of tepid water when needed. Purgatives should be avoided; rubbing the abdomen is useful; a flannel binder may be worn.—*Practitioner*, March, 1893.

X. THE TREATMENT OF HEADACHE.

In an instructive paper on this subject Dr. Lauder Brunton calls attention to the difficulty of treating some headaches, which arises from the fact that during the period of severe pain both secretion and absorption from the stomach become arrested, and

any medicine which is taken by the mouth when the headache is fairly begun lies in the stomach unabsorbed and useless. Thus he explains the variability of such drugs as antipyrin. When taken before the headache has become severe and before absorption has ceased it acts well, whereas if absorption has become arrested it merely lies in the stomach.

He believes that almost all headaches are due to peripheral causes. In estimating the effect of different conditions he believes that between 80 and 90 per cent. of all headaches are due to visual defects, about 10 per cent. to decayed teeth, and about 5 per cent. to disorders of the throat, nose, and other causes. In addition to the ordinary visual defects—hypermetropia, myopia, and astigmatism—he says that imperfect power of convergence is sometimes the cause of headaches, which may be cured by wedge-shaped glasses. The pain caused by some of these visual defects may be felt in unexpected localities. In one case severe pain of long standing, felt two and a half inches below and one inch to the right of the occipital protuberance, was permanently cured by suitable glasses; generally, however, it is frontal, temporal, or occipital.

One common form of headache commences in this way:—The patient sometimes, but not always, feels some unwonted irritability at night. He awakes in the morning about four, five, or six with a feeling of weight in the head, but not a headache. He is very drowsy, disinclined to rise, and is apt simply to turn over and go to sleep again almost at once. If he does, he awakes about seven or eight with a distinct headache, which grows worse as the day wears on; and at last, in the evening, after being almost unbearable, culminates in vomiting, after which the sufferer becomes easier, but feels much exhausted. A headache of this sort may often be prevented by taking, at the first premonitory symptom, either in the evening or early in the morning, a mixture of bromide of potassium and salicylate of sodium—the average dose being 30 or 35 grains of the former with 5 to 15 grains of the latter in half a tumbler of water. If the first dose does not keep off the headache entirely, it may be repeated once or twice. Dr. Lauder Brunton believes it acts better than either drug separately.

As a proof of the harmlessness of salicylate of sodium he mentions the case of a lady who, to relieve headache, took, with but short intervals, twenty grains three times a day for about eight years.—*Practitioner*, February, 1894.

XI. THE QUESTION OF OPERATION IN PULMONARY TUBERCULOSIS.

Dr. A. Chaplin contributes to the *Practitioner* for January, 1894, a review of the question of the usefulness of operative interference in pulmonary tuberculosis. There are, he says, four operations open to the surgeon:—

1. Tapping a cavity either with a trocar or with an aspirator.
2. Incision into the cavity and drainage.
3. Injection of a cavity with some antiseptic substance or fluid.
4. Excision of a piece of a lung affected with tuberculosis.

Dr. Chaplin discusses the question of interference with a cavity. If good is to be done, the cavity must be the cause of the patient's troublesome symptoms. It is, however, impossible to say that the cavity is the seat of all his trouble, and not some focus of disease elsewhere in the lungs; in this case the operation will do no good. If there be other cavities in the lungs, or even any active tubercular infiltration, no good will ensue.

With regard to the excision of a diseased piece of lung, Dr. Chaplin holds it to be dangerous, uncertain, likely to be incomplete, and therefore useless.

He concludes his review thus:—"The attempt has been made in this paper to show how much positive knowledge of the actual state of the lung is at the command of the physician when contemplating surgical interference in pulmonary tuberculosis. It has been contended that this knowledge is not exact and definite enough to ensure a fair prospect of success in the undertaking. In the case of a tuberculous cavity the advantages do not seem to be of sufficient magnitude to warrant an operation except in a very few instances. And when we turn to the question of removing from the lung pieces affected with tuberculous infiltration we are obviously in the region of pure experiment, with but little evidence or experience to guide us. The physician must be near the end of his resources in treatment who proposes, and the surgeon unusually bold and sanguine of success who attempts, such a hazardous undertaking."

XII. THE OPERATIVE TREATMENT OF PULMONARY DISEASES.

Fairchild has reported a case of abscess of the lung in which the abscess was successfully drained. A man, aged fifty-five, passed through an attack of pneumonia, and was convalescent; then fever and cough returned, and a small quantity of very

offensive matter was expectorated. The case looked now like one of gangrene of the lung. The man grew worse; the heart was found slightly displaced towards the right; in front, on percussion, the lung was found to give a somewhat dull note, and the breathing was feeble; while at the back there was absolute dulness, and the breath-sounds could not be heard. These signs did not vary with changes of position. As it was now considered that a pulmonary abscess existed, it was decided to attempt to open it, and an aspirator-needle was introduced into the chest to ascertain the locality of the pus. After several unsuccessful punctures had been made, the needle was introduced through the 5th space just in front of the angle of the ribs, and a free flow of pus followed. As the ribs were too close together to permit a free opening to be made, a portion of the 3rd rib was excised, the aspirator needle being used as a guide. The two layers of pleura were found adherent; a dressing forceps was pushed into the abscess cavity and withdrawn with its blades separated, thus tearing an opening into the abscess. About ten ounces of pus escaped. A large drainage-tube was then introduced and the cavity well washed out with boric lotion. The wound was dressed in the ordinary way; the flow of pus lessened; cough and expectoration soon ceased; At the end of a year the man was perfectly well.—*Chicago Clinical Review*, Vol. II., No. 23.

Hofmokl records the case of a man, aged forty-three, who for five weeks had suffered from some pain in the right side of his chest, and cough worst at night. There was but little sputum, but both it and the breath were very foetid. There was slight fever, loss of appetite, sleeplessness, and emaciation. Respiration was quiet and mostly abdominal; the sides of the thorax seemed to move equally. Vocal thrill was lessened over the right front. There was marked dulness on percussion from the clavicle down to the third space; elsewhere the percussion-note was normal. The breath-sounds were bronchial in character in the first and second spaces near the sternum; faint in the rest of the dull area, and normal elsewhere; over the dull area some râles were heard, and whispering pectoriloquy was perceived in the first interspace. As time went on the expectoration increased, but no tubercle-bacilli could be found. A solution of methyl-violet was injected through the second intercostal space, and at once appeared in the sputum. The diagnosis of bronchiectasis was made, and ordinary medical treatment was tried, but without effect. An operation

was therefore resolved on; an incision $3\frac{1}{2}$ inches long was made in the second intercostal space, and an opening was made into the lung with the actual cautery; the pleural layers were adherent. Less than a drachm of thick offensive pus escaped, but no air; a sound passed about an inch into the lung. There was very little haemorrhage. The wound was packed with gauze.

After the operation the expectoration lessened in amount and lost its foetid smell. After some time, when the patient coughed, air came through the opening. However, steady improvement followed, and eventually the man made a complete recovery.—*Wiener med. Presse. Jahrg. 34, No. 18.*

Dr. Dandridge read a paper on this subject at the annual meeting of the New York State Medical Association. He advised operation in two classes of cases—1. Abscess of the lung, pulmonary gangrene and hydatid cyst. 2. Tubercular and bronchiectatic cavities. He described a case he had treated:—A man, aged twenty-nine, with a phthisical family history, was troubled with pain in the side, dry cough, and some pyrexia. From the physical signs the existence and position of a cavity were diagnosticated; three inches of the 8th and 9th ribs in the axillary line were removed, and the underlying cavity was freely opened. It reached to the surface of the lung, and its walls were rough like those of ordinary phthisical cavities. About half a pint of bloody fluid with some débris was removed, the cavity was washed out with sterilised boric acid solution, and a drainage-tube was inserted and left in for several days. He rapidly improved, and was discharged from hospital in two months.—*New York Med. Jour., Nov. 4, 1893.*

XIII.—THE TREATMENT OF DIPHTHERIA BY MEANS OF SUB-MEMBRANOUS INJECTIONS.

Dr. Siebert describes and figures the special instrument he has had constructed for this purpose. It consists of a syringe slightly larger than an ordinary hypodermic syringe, to which a tube is fitted on, ending in a flat plate provided with five short, hollow needles. Through these fluid is injected into the mucous membrane in several places at once, while the flat plate does not allow them to penetrate too far into the tissues. The syringe is provided with several of these ends, of different shapes and sizes, in order that the fluid may be injected easily into the mucous membrane of any part of the pharynx.

The fluid Siebert uses is fresh chlorine water. It must be kept

cold and in the dark; under these circumstances it will keep good for several weeks.

The treatment is carried out in the following way:—The mother holds the child on her lap; the child's tongue is now pressed down with a spoon, the instrument is introduced into the mouth, and the little needles pressed through the false membrane; the spoon is then withdrawn, and the fluid is slowly injected under the membrane. The injection causes but little pain. It does no harm, in case the patch of disease is small, if some of the needles pierce the surrounding healthy mucous membrane.

The number of injections needed depends on the extent of the membrane, and on their effect on the constitutional symptoms. If the first injection destroys the diphtheria germs under the membrane, the fever, pain, and other symptoms quickly disappear—sometimes in one to three hours. The membrane remains adherent for two or three days, and then falls off gradually. Usually the first sign of success of the treatment is the return of appetite. If the temperature and pulse do not fall, the injection was insufficiently done, or the chlorine water was bad, or there are other foci of the disease elsewhere. If the membrane spreads after the injections, they must be repeated all over the infected area. If the membrane does not spread, but if fever persists, and the glands remain swollen, the membrane should twice daily be "undermined" with the chlorine water till these symptoms disappear. Even in those cases in which the general condition rapidly improves, Dr. Siebert thinks it best to inject half a syringe full every day under the membrane until the pharynx is healthy.

Siebert gives details of this treatment in 104 cases of diphtheria. Six cases died; in 87 cases the good results of the treatment appeared within twenty-four hours; 64 cases recovered completely within four days from the commencement of this treatment; in 2 cases paralysis followed. During the same period the mortality in New York of diphtheria was 38·9 per cent.—1,161 out of 3,162.

He also recommends this treatment in the sloughing conditions of the throat that follow scarlatina. In most cases he injects once a day—two to six syringefuls at a time—in severe cases twice a day. Details are given of 22 cases without a death.

In both diseases he prescribes the following mixture:—

Tincture of Iodine	-	-	-	m	80
Potassium Iodide	-	-	-	gr.	15
Carbolic Acid	-	-	-	gr.	10
Distilled Water	-	-	-		34

Of this one-half to one teaspoonful is to be gargled with or swallowed every quarter of an hour from 6 a.m. till 12 midnight.—*Jahrb. f. Kinderheilkunde, Bd. 37. Hft. 1.*

XIV. THE NATURE AND TREATMENT OF ANGINA PECTORIS.

Dr. Burney Yeo considers the nervous factor to be the element of most importance in the production of this affection. "Angina is a neurosal *incident* of cardiac disease." "I believe that in all the graver forms of angina there exists a serious organic cardiac or vascular lesion; and in the milder or curable forms we have simply to do with a cardiac neuralgia or hyperæsthesia induced either by temporary conditions of cardiac mal-nutrition or cardio-vascular strain; or it may be dependent on an inflammatory affection of branches of the cardiac plexus, itself dependent on aortitis; or else it may be brought about by states of blood contamination, and in the latter case it is associated with vaso-motor excitement and increased arterial tension. I have seen reason to regard the heightened arterial tension and 'vaso-motor spasm' as merely an incident of the attack: the augmentation of vascular tension will be found to be a sequence, not a precursor, of the attack, a consequence of the shock of pain, a reflex irritation of vaso-motor centres."

The most serious forms of angina seem to have a complex causation—first, there must be a neurosal element, the nerves of the cardiac plexus suffer irritation, and a cardiac neuralgia or nerve pain of an intense character is excited; this acts as a shock to the motor nerves of the heart, and in fatal cases the heart muscle on the verge of failure from organic causes is shocked by the attack of nerve pain; and if there should be excited at the same time some reflex arterial spasm the heart will have to encounter an increased peripheral resistance as well. In the less grave and more entirely remedial forms of angina we may find a feeble ill-nourished cardio-vascular system from anaemia submitted to undue strain: or there may be some intoxication, such as that of tea, tobacco, alcohol, gout, or some intestinal toxin irritating the cardiac and vaso-motor nerves, causing central irritability, and increasing peripheral resistance. Vaso-motor spasm as a unique cause of attacks of angina must be set aside.

The following is a summary of Dr. Yeo's remarks on treatment:—

1. Maintain or improve when defective the general nutrition; avoid all strain, physical and emotional; and so relieve cardiac

feebleless and excessive effort. To this end he advises repose of mind and body, alternating with gentle physical exercise. Food should be nutritious; milk diet is often useful; on rising in the morning he recommends a wineglassful of cream mixed with the same quantity of hot water, and a teaspoonful of sal volatile added.

2. Relieve dyspeptic conditions and flatulent or faecal distension of the stomach and intestines. Flatulent distension during digestion will often be effectually relieved by a pill containing a grain of thymol or a drop of creasote taken directly after food. Regular evacuation of the bowels is most essential; indigestion must be treated in accordance with general principles.

3. Forbid the habitual consumption of agents which may produce toxic action on the heart, such as tea, coffee, tobacco, alcohol, &c., or that may induce or develop toxins in the alimentary canal. The action of these toxic agents is all the more subtle because they may be taken for many years without apparently producing any injurious effect, and it is often difficult to convince a patient that what he has so long done with impunity has at length become injurious.

4. Avoid and remove all gouty and other blood contaminations. The kidneys, the bowels, and the skin should be called into action; in gouty cases a careful and spare diet is advisable; animal food should be taken only in great moderation; and fresh vegetables and fruit, carefully cooked and prepared so as to be made easy of digestion, should take its place.

5. Give such tonic remedies as may improve the cardiac tone and lessen existing tendencies to cardio-vascular degeneration; in anaemic cases iron with digitalis is useful; in many cases arsenic is of more value; strychnin also does good. In highly neurotic cases iron or arsenic in combination with sodium or potassium bromide is useful, as also is valerianate of zinc. Iodide of potassium in 5 to 15 grain doses, three times a day, is of very great value, especially when the angina is associated with obvious signs of cardio-vascular degeneration and of the gouty state. It has recently been stated that cocaine, in doses of one-third of a grain, thrice daily, has the power of entirely preventing the attacks.

6. Relieve the paroxysmal attacks by sedatives and stimulants. Nitrites relieve many cases, but Dr. Yeo is extremely doubtful that they do so by their action as vaso-dilators, and believes they act as direct analgesic agents. Amyl nitrite may be inhaled; $\frac{1}{100}$ to $\frac{1}{50}$ of a grain of nitro-glycerine may be administered.

This drug has been pushed until 35 minims of a 1 per cent. solution have been given, and repeated at short intervals during the attack, and 7 minims three times a day during the intervals; small doses, however, should be given at first. Sodium nitrite in doses of $2\frac{1}{2}$ to 10 grains is said to have a more lasting effect than the other nitrites. At the onset of an attack, in addition to the inhalation of nitrite of amyl, we may give some warm diffusible stimulant, sulphuric ether, or nitrous ether and sal volatile or alcohol. Balfour's recommendation of inhalations of chloroform is alluded to; the hypodermic use of morphia is advised in severe and protracted attacks; "morphine seems to be better tolerated in cases of cardiac pain with a weak heart than when it is given to relieve other neuralgias under the same circumstances. When it is given to relieve cardiac pain there seems less risk of it causing cardiac depression." Flying blisters or a mustard poultice are often useful.

The paper contains many other practical hints which we have not space to allude to.—*Practitioner*, May, 1893.

PROLONGED SLEEP.

At the last annual meeting of the Canadian Medical Association, "Dr. T. Wesley Mills, of Montreal," says the *Medical Record*, "read an interesting paper on Peculiar Forms of Sleep or Allied Conditions. He referred to published reports of people going into trances or long sleeps, which at one time he could not believe, but with age and experience he was forced to conclude that there were good foundations for most popular beliefs or delusions. He had watched the hibernating habits of a woodchuck for four years. He had also studied three or four authentic cases that had occurred in Canada, the subjects of most of them being weak-minded, with often hereditary symptoms of insanity. Some of the individuals slept for months or years, some of the circumstances being similar to the case of the woodchuck—the taking of food and the attending to calls of nature at regular intervals, in one case thirty days, during the term of sleep of hibernation, six months every year for thirty years. In the case of one, an old woman, who died at the age of seventy, one-third of her life was spent in a stupor. She asked for a drink of water shortly before her death, which was the second time she had broken silence for thirteen years. As death approached she recovered partial consciousness, and manifested affection to one of the nurses and spoke more frequently."

PART IV. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—**GEORGE H. KIDD, M.D., F.R.C.S.I.**
General Secretary—**W. THOMSON, F.R.C.S.I.**

SECTION OF SURGERY.

President—**EDWARD HAMILTON**, President of the Royal College of Surgeons in Ireland.

Sectional Secretary—**KENDAL FRANKS, F.R.C.S.I.**

Friday, December 8, 1893.

F. A. NIXON, F.R.C.S.I., in the Chair.

The Operative Treatment of Enlarged Prostate.

MR. ARTHUR CHANCE read a paper on the Operative Treatment of Enlarged Prostate. He referred to a man, aged fifty-six, on whom he had operated by the supra-pubic method. Electrolysis had first been tried but gave only temporary relief. The growth showed the “uniform circular enlargement surrounding the internal orifice of the urethra,” described by M’Gill. Prior to the operation the urine had been passed, on an average, every ten minutes. Now, more than ten months after operation, the man would hold water with ease for ten or eleven hours. Mr. Chance considered that a catheter did not completely empty the bladder, and that therefore the usual method of estimating residual urine was open to fallacy. He advocated the use of a flushing gouge for the removal of the growth, for the reasons that it could be readily manipulated through a small incision, and also because of the value of a stream of hot water in stopping haemorrhage. He thought the supra-pubic drainage really meant *overflow*, and he therefore advised the insertion of,

a perineal tube as an addition to the supra-pubic operation. In conclusion, he strongly urged the propriety of early operation.

MR. KENDAL FRANKS congratulated Mr. Chance on the success attending him in this case. He himself had seen this case in the Mater Hospital. He had the satisfaction of knowing from the patient himself that there was a great improvement in his condition. He thought that this operation was one of the many operations that marked the progress of surgery in the latter part of the nineteenth century. They had all met with a great many cases of prostate enlargement, and what a miserable class of cases they were! They knew that after catheter-life had been established the patient's life was frequently simply unendurable. They accepted with great pleasure the recommendation of Sir H. Thompson for relieving this miserable condition a few years ago. This method of draining the bladder through the perineum he had tried in several cases, and he saw that it was certainly a most valuable procedure for giving physiological rest to the bladder, and with relief of all symptoms for a time. But in this operation they had a much more valuable method of dealing with it, because they not only gave physiological rest but they also removed the cause of the disease. He entirely agreed with Mr. Chance as to the value of supra-pubic drainage, but he thought where they had a healthy perineum they should deal with it there, because it was putting the drainage in the most dependent position. Otherwise, the maximum amount of drainage we get is the overflow, and we do not get the bladder completely emptied. He suggested that in these cases of prostatectomy the best thing to do was to make, in addition, a perineal opening and put in a big tube. In the supra-pubic operation he thought it a very desirable thing in most cases to obtain primary union of the bladder wound, because they would not then have a weak spot in the abdominal walls, and it was the point where the drainage-tube was put in which frequently yielded, and where hernia was most likely to occur. As to the time at which the operation should be done, he thought that in suitable cases the earlier it was done the better. He thought there would be a far larger percentage of successes if they only took the thing in time. He would be inclined to say that once the catheter required to be passed more frequently than every second or third hour, the limit would be reached at which the operation should be adopted.

MR. MYLES thought that this admirable paper presented a subject of the greatest importance and the greatest difficulty. His own experience was that the diagnosis of these cases was not at all simple. He instanced a case sent from the country as one of prostatic enlargement. The patient had all the ordinary symptoms, as difficulty of micturition, and on examination per rectum the prostate was found enlarged. All the ordinary catheters got stuck at the bladder, but a short-beaked staff entered. The patient subsequently died, and his bladder was found to

be absolutely normal, so that he thought it was a very difficult matter to know what cases of prostatic enlargement were cases for operation. He said if they examined the specimens in the Museum of the College they would find an extraordinary diversity in the types of prostatic enlargement. He remembered Mr. Tobin reading an excellent paper on this subject two years ago, and he brought down to the meeting several interesting specimens. Some of the specimens were those of a pediculated tumour growing from the posterior part of the prostate, and absolutely excluding the aperture of the urethra. Others presented ragged, irregular enlargements of such a type that operations on the middle lobe would do no good. They could only be simply scraped away or cauterised. Another point of great importance in these cases was the fact that the tenure of life in these patients was extremely limited. He instanced the patient already referred to, who, three hours after the instrument was passed, got a severe rigor, which was repeated, and he died at ten o'clock that night. On examination, all the organs were healthy save the kidneys, which were in a state of hydronephrosis. He said, therefore, that if a man with an enlarged prostate should die after examining the bladder, how much more likely was he to die if he submitted to operation. He next referred to the electrical treatment of Mr. Chance, and said that he himself had used it on his private patients, much to his own and their detriment. He would like to know whether Mr. Chance used the galvanometer, and whether an increase in the force of the current produced a corresponding diminution in the size of the tumour. With regard to supra-pubic drainage, he submitted there were means by which the bladder could be kept quite empty. He explained how by means of an Indian-rubber apparatus, a perfect siphon would be formed by which not a drop of urine would be allowed to collect in the bladder, and the kinks could be avoided also. He thought it a very difficult matter to tap the bladder through the perineum if the prostate be enlarged. The distance between the perineum and the floor of the bladder is fully three inches, and it was not every practitioner's fingers that could reach it. He also wished to question the use of the term "residual urine." Were they to understand by that the urine that remains after the patient has exerted all his voluntary efforts, or after the surgeon has evacuated what he can by the catheter. He did not think that the mechanism of the catheter was properly understood, because it was immaterial whether the catheter was placed above the actual level of the fluid or below it, as the fluid would flow in the line of least resistance owing to the pressure inside the abdomen being always positive.

MR. CHANCE, in reply to Mr. Franks, said with regard to the closing of the bladder, that the probability of failure would be very much diminished if perineal drainage were employed, because there would then

be no strain on the bladder. With regard to the time of the operation, when there was obstructive prostatic enlargement, he did not see the use of wasting time but would deal with it at once. He admitted with Mr. Myles that the difficulty of diagnosis was great, but he always adopted the precaution of first reducing any inflammation by mild measures, and he thought that after that the age, symptoms, &c., would lead them to a right conclusion. With regard to the different kinds of growth, he said his case was of a most difficult kind, because it was a circular and os-like projection into the bladder and it gave the maximum of trouble, and he could not understand any more irregular form of growth to be met with. He did not believe in the efficacy of electricity, and when he found no good results he stopped. He joined issue with Mr. Myles about siphon drainage. He thought the idea simply Utopian, although it might have a scientific basis. With regard to discerning between the membranous portion of the urethra and the bladder, they did not want that, because supra-pubic prostatectomy dealt with the prostate, and then by a perineal incision into the membranous portion of the urethra it would meet the other finger, and a drainage tube could be inserted. Mr. Myles has denied the existence of a post-prostatic pouch, but he (Mr. Chance) thought that applied only to the healthy subject, because, as a matter of fact, he could put his finger into it in his last case. By residual urine he understood the water drawn off by the catheter after the patient had passed as much as he was able. He said that even after emptying the bladder by the catheter, still a considerable quantity remains behind. His proof was that when they washed out the bladder and passed a catheter, and afterwards injected 14 ounces of water, the bladder was considerably distended to more than it should be by the 14 ounces. He referred to the advantages of the scoop, and said it was especially useful where they had only a small opening.

Laminectomy in Spinal Injuries.

MR. T. MYLES read notes of a case in which a man who had been admitted to the Richmond Hospital for paraplegia, the result of a fall from a cart on the back of his head, had been operated on by him.

The symptoms that were held to justify the operation were the presence of motor paralysis—complete in the case of the legs, incomplete in the arms—persistence of cutaneous sensibility, and for 24 hours of reflex irritability in one lower limb. An incision was made from below occiput to 7th cervical vertebra; the muscles cleared from the neural arches. It was found that the arches of the 3rd and 4th cervical vertebrae were shattered and depressed. These were removed, and also the arches of the 5th and 6th.

The dura was felt to be tense, and was, therefore, opened, but the naked-eye appearances of the cord were normal.

Slight relief followed the operation, but 24 hours later patient began to sink, and died of dyspnoea on the third day after accident.

Mr. Myles then discussed at considerable length the phenomena associated with these grave injuries, and pointed out that it was only in fractures caused by direct violence that any reasonable hope of benefit by operation existed, as in fractures caused by indirect violence the mechanism of the fracture necessitates the occurrence of severe injury to the anterior aspect of the cord by the rearward-driven fragments. Consequently removal of the fragments could not restore the lost functions apart from the mechanical difficulty of getting access to the joint of the cord.

The author also discussed the clinical value of the spinal reflex, pointing out that in this case, at least, the analogy from experiments in animals were misleading, as in every case where the cord was divided completely, all reflex action ceased immediately below the injured area, as shown by the researches of Therburn and Bastian.

MR. F. A. NIXON said that through the courtesy of Mr. Myles he had an opportunity of seeing the case. The operation was performed with great manipulative skill, and the cord on exposure seemed to him to be intact and surrounded by its normal coverings. The difficulty, of course, in such cases as this was to make out accurately to what extent the spine had been injured by the original accident. Apart from that, the great severity of the operation, which required deep incisions, and the removal of the laminae in cases of spinal injuries, does not seem to favour surgical interference.

MR. DOYLE mentioned the case of a child, five and a half years old, whom he operated on. She came into hospital suffering from paralysis, increased tendon reflexes, rigid muscles, and cystitis. After removing portions of the vertebrae, which were exhibited at the Section last year, there was a temporary improvement for a few days. As this did not continue, he suspected abscess formation causing compression of the cord. He had no difficulty in letting out the abscess, but experienced a great amount in keeping it open, and the child died six weeks after from cystitis and renal trouble.

MR. KENDAL FRANKS said that laminectomy was an operation not likely to appeal to their experience, because they were not often called upon to operate in cases of spinal fracture. Mr. Myles was to be congratulated on attempting the operation, and he thought from the history of the case he was perfectly justified in performing it. The most contentious portion of his paper was the physiological one, but it was scarcely the subject for discussion in a surgical meeting. He did not agree with Mr. Myles in his agnosticism regarding the physiology of the spinal cord. He thought his disbelief in the physiology of the reflex centres unusually heretical. With regard to the surgical aspect of the question, he thought Mr. Myles acted very properly in removing

the long portions pressing in upon the spinal cord, but he did not tell them what the appearances were before he opened the investing sheath. The point of surgical importance was why he opened it? In cases of laminectomy for spinal disease the dura mater should not be opened unless absolutely necessary. That had been laid down by Mr. Victor Horsley. He (Mr. Franks) had done laminectomy for spinal disease, and he thought it a very valuable operation in suitable cases. He asked Mr. Myles what reasons he had for opening the sheath. He had no doubt that if the theca was found to be bulging from pressure under it, Mr. Myles was perfectly right in opening it; but if the pressure were due alone to fragments of bone pressing on the outside of the sheath, that was a different matter. In conclusion, he said the paper, although heretical, was of great importance and interest.

DR. J. BARTON inquired as to the condition of the cord on making a *post-mortem*.

MR. MYLES, in reply to Mr. Barton, said that no microscopic examination had been made owing to the specimen having been mislaid. The cord had the appearance of being slightly bruised and flattened, but its continuity did not appear to be disturbed. He joined issue with Mr. Franks that the discussion of the physiology of reflex action at a surgical meeting was inappropriate. He thought that anything which contributes to the accuracy of diagnosis was part of the surgeon's armament. If the frog in his gyrations gave them certain information, they should not be above receiving it. They should not accept any haphazard experiments without comparing them with their own clinical results. As far as his own experience went, all independent reflex action of the spinal cord existed only in the imagination of the physiologist. Then as to the appearance of the spinal cord, he was only familiar with its appearance in the cadaver. However, the dura mater seemed both to his colleagues and himself, and to Mr. Nixon, more prominent than it ought to be, and when pressed upon it gave a sense of fluctuation; and as the phenomena outside were insufficient to account for the paralysis, it was resolved to puncture lest there might be any possible compression from blood, &c. He had hoped the physiologists would be present, as he thought they might enlighten them regarding the process of evolution which the physiology of the spinal cord was undergoing at present.

The Section then adjourned.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, B.A., M.D., Univ. Dubl.; F.R.C.P.I.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

VITAL STATISTICS .

For four Weeks ending Saturday, February 24, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Feb. 8	Feb. 10	Feb. 17	Feb. 24		Feb. 8	Feb. 10	Feb. 17	Feb. 24
Armagh -	21·0	7·0	56·1	56·1	Limerick -	18·2	25·8	19·6	12·6
Belfast -	26·3	26·7	29·2	32·0	Lisburn -	25·7	21·3	21·3	34·1
Cork -	25·6	29·1	38·9	25·6	Londonderry	17·3	22·0	17·3	26·7
Drogheda	22·0	18·2	22·0	57·1	Lurgan -	27·4	41·1	9·1	31·9
Dublin -	32·8	31·6	31·8	28·0	Newry -	8·1	20·1	12·1	24·1
Dundalk -	54·5	12·6	12·6	16·8	Sligo -	30·5	35·5	25·4	15·2
Galway -	79·3	7·6	34·0	26·4	Waterford -	27·5	20·0	37·5	12·5
Kilkenny	28·3	37·3	14·2	18·9	Wexford -	36·1	18·1	9·0	31·6

In the week ending Saturday, February 8, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 19·4), was equal to an average annual death-rate of 20·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·0 per 1,000. In Glasgow the rate was 22·2, and in Edinburgh it was 17·5.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 29·2 per 1,000 of the population.

The deaths from the principal symptomatic diseases in the sixteen districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in six of the districts to 5·1 in Sligo—the 6 deaths from all causes registered in that district comprising 1 from scarlatina. Among the 136 deaths from all causes registered in Belfast are 5 from measles, 4 from

whooping-cough, 1 from diphtheria, and 2 from diarrhoea. The 11 deaths in Waterford comprise 2 from scarlatina. The Registrar of Lisburn District remarks: "Pertussis (whooping-cough) still very prevalent and complications almost in every case."

In the Dublin Registration District the registered births amounted to 188—97 boys and 86 girls; and the registered deaths to 225—97 males and 128 females.

The deaths, which are 12 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 33·6 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 32·8 per 1,000. During the first five weeks of the current year the death-rate averaged 33·3, and was 0·7 under the mean rate in the corresponding period of the ten years 1884–1893.

Thirty-four deaths from zymotic diseases were registered, being 12 in excess of the average for the fifth week of the last ten years, but 8 under the number for the week ended January 27. They comprise 3 from measles, 2 from scarlet fever (scarlatina), 10 from influenza and its complications, 10 from whooping-cough, 1 from diphtheria, 1 from ill-defined fever, 1 from enteric fever, 2 from diarrhoea, and 1 from erysipelas.

Only 8 cases of enteric fever were admitted to hospital, being 8 under the admissions for the preceding week, and 8 under the number for the week ended January 20. Ten enteric fever patients were discharged, 3 died, and 53 remained under treatment on Saturday, being 5 under the number in hospital at the close of the preceding week.

Thirteen cases of scarlatina were admitted to hospital, being equal to the admissions for the preceding week. Seventeen patients were discharged, 2 died, and 62 remained under treatment on Saturday, being 6 under the number in hospital on Saturday, January 27.

The hospital admissions for the week included, also, 6 cases of measles and 3 of typhus: 15 cases of the former and 7 of the latter disease remained under treatment in hospital on Saturday.

Fifty-four deaths from diseases of the respiratory system were registered, being 6 over the number for the preceding week, but 1 under the average for the fifth week of the last ten years. They comprise 38 from bronchitis and 14 from pneumonia or inflammation of the lungs.

In the week ending Saturday, February 10, the mortality in thirty-three large English towns, including London (in which the rate was 18·4), was equal to an average annual death-rate of 19·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·7 per 1,000. In Glasgow the rate was 20·4, and in Edinburgh it was 16·3.

The average annual death-rate in the sixteen principal town districts of Ireland was 27·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·0 per 1,000, the rates varying from 0·0 in seven of the districts to 14·2 in Kilkenny—the 8 deaths from all causes registered in that district comprising 3 from diarrhoea. Among the 138 deaths from all causes registered in Belfast are 6 from measles, 5 from whooping-cough, 3 from diphtheria, 2 from simple continued fever, 5 from enteric fever, and 2 from diarrhoea. The Registrar of Kilkenny, No 1 district, reports the occurrence of 1 death from influenza.

In the Dublin Registration District the registered births amounted to 201—125 boys and 76 girls; and the registered deaths to 222—113 males and 109 females.

The deaths, which are 18 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 33·1 in every 1,000 of the population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the district, the rate was 31·6 per 1,000. During the first six weeks of the current year the death-rate averaged 33·3, and was 0·1 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 30, being 10 in excess of the average for the corresponding week of the last ten years, but 4 under the number for the week ended February 3. The 30 deaths comprise 1 from measles, 1 from rötheln, 3 from scarlet fever (scarlatina), 1 from typhus, 6 from influenza and its complications, 8 from whooping-cough, 2 from diphtheria, 1 from ill-defined fever, 2 from enteric fever, 1 from diarrhoea, and 2 from dysentery.

Twelve cases of enteric fever were admitted to hospital, being 4 over the admissions for the preceding week, but 4 under the number for the week ended January 27: 10 enteric fever patients were discharged, and 55 remained under treatment on Saturday, being 2 over the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 12, being a decrease of 1 as compared with the admissions for the preceding week: 16 patients were discharged, and 58 remained under treatment on Saturday, being 4 under the number in hospital on Saturday, February 3.

The hospital admissions for the week included, also, 4 cases of measles and 2 of typhus: 14 cases of the former and 6 of the latter disease remained under treatment in hospital on Saturday.

Diseases of the respiratory system caused 53 deaths, being 4 over the average for the sixth week of the last ten years, but 1 under the number for the week ended February 3. The 53 deaths comprise 35 from bronchitis and 15 from pneumonia or inflammation of the lungs.

In the week ending Saturday, February 17, the mortality in thirty-three large English towns, including London (in which the rate was

18·6), was equal to an average annual death-rate of 18·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·2 per 1,000. In Glasgow the rate was 19·5, and in Edinburgh it was 17·5.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 28·8 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·0 per 1,000, the rates varying from 0·0 in ten of the districts to 12·8 in Lisburn—the 5 deaths from all causes registered in that district comprising 1 from scarlatina and 2 from whooping-cough. Among the 151 deaths from all causes registered in Belfast are 9 from measles, 5 from scarlatina, 5 from whooping-cough, 2 from diphtheria, 1 from enteric fever, and 2 from diarrhoea. The 49 deaths in Cork comprise 1 from measles and 1 from diarrhoea.

In the Dublin Registration District the registered births amounted to 191—104 boys and 87 girls; and the registered deaths to 223—100 males and 123 females.

The deaths, which are 9 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 33·3 in every 1,000 of the population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the district, the rate was 31·8 per 1,000. During the first seven weeks of the current year the death-rate averaged 33·3, and was 0·1 over the mean rate in the corresponding period of the ten years 1884-1893.

Thirty-one deaths from zymotic diseases were registered, being 1 over the number for the preceding week and 11 in excess of the average for the seventh week of the last ten years. They comprise 3 from measles, 2 from scarlet fever (scarlatina), 4 from influenza and its complications, 10 from whooping-cough, 1 from diphtheria, 3 from enteric fever, 3 from diarrhoea, 1 from dysentery, and 2 from erysipelas.

The number of cases of enteric fever admitted to hospital was 10, being 2 under the admissions for the preceding week: 9 enteric fever patients were discharged, 2 died, and 54 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

The cases of scarlatina admitted to hospital also show a decline, the number being 10, or 2 under the admissions for the preceding week: 10 patients were discharged, and 58 remained under treatment on Saturday, being equal to the number in hospital on Saturday, February 10.

The hospital admissions for the week included, also, 5 cases of measles and 4 of typhus: 15 cases of the former and 6 of the latter disease remained under treatment in hospital on Saturday.

Diseases of the respiratory system caused 58 deaths, being 5 over the number for the week ended February 10, and also 5 over the average for the seventh week of the last ten years. The 58 deaths comprise 34

from bronchitis, 14 from pneumonia or inflammation of the lungs, 2 from croup, and 1 from pleurisy.

In the week ending Saturday, February 24, the mortality in thirty-three large English towns, including London (in which the rate was 20·0), was equal to an average annual death-rate of 20·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·6 per 1,000. In Glasgow the rate was 20·5, and in Edinburgh it was 20·6.

The average annual death-rate in the sixteen principal town districts of Ireland was 28·3 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in ten of the districts to 4·5 in Belfast—the 165 deaths from all causes registered in that district comprising 7 from measles, 2 from scarlatina, 6 from whooping-cough, 1 from diphtheria, 3 from enteric fever, and 4 from diarrhoea. The 37 deaths in Cork comprise 1 from measles and 1 from scarlatina.

In the Dublin Registration District the registered births amounted to 186—92 boys and 94 girls; and the registered deaths to 196—99 males and 97 females.

The deaths, which are 15 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 29·2 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the district, the rate was 28·0 per 1,000. During the first eight weeks of the current year the death-rate averaged 32·8, and was 0·2 under the mean rate for the corresponding period of the ten years 1884—1893.

The number of deaths from zymotic diseases registered was 25, being 5 in excess of the average for the eighth week of the last ten years, but 6 under the number for the week ended February 17. The 25 deaths comprise 2 from measles, 2 from typhus, 9 from influenza and its complications, 5 from whooping-cough, 1 from ill-defined fever, 2 from enteric fever, and 2 from diarrhoea.

Only seven cases of enteric fever were admitted to hospital, being 3 under the admissions for the preceding week and 5 under the number for the week ended February 10. Six enteric fever patients were discharged, 2 died, and 53 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

Eighteen cases of scarlatina were admitted to hospital, being 8 over the admissions for the preceding week and 6 in excess of the number for the week ended February 10. Ten patients were discharged, and 66 remained under treatment on Saturday, being 8 over the number in hospital on Saturday, February 17.

The hospital admissions for the week included, also, 7 cases of measles and 1 of typhus: 19 cases of the former and 5 of the latter disease remained under treatment in hospital on Saturday.

Diseases of the respiratory system caused 62 deaths, being 4 over the number for the preceding week, and 9 over the average for the eighth week of the last ten years. The 62 deaths comprise 39 from bronchitis, 16 from pneumonia or inflammation of the lungs, and 1 from pleurisy.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of February, 1894.

Mean Height of Barometer,	-	-	-	29.906 inches.
Maximal Height of Barometer (on 20th, at 9 a.m.),	-	-	30.448	"
Minimal Height of Barometer (on 11th, at 8 p.m.),	-	-	28.867	"
Mean Dry-bulb Temperature,	-	-	-	43.7°.
Mean Wet-bulb Temperature,	-	-	-	41.6°
Mean Dew-point Temperature,	-	-	-	39.1°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	.242 inch.
Mean Humidity,	-	-	-	84.6 per cent.
Highest Temperature in Shade (on 7th),	-	-	-	58.6°.
Lowest Temperature in Shade (on 1st),	-	-	-	31.6°.
Lowest Temperature on Grass (Radiation) (on 1st)	-	-	-	26.5°.
Mean Amount of Cloud,	-	-	-	57.2 per cent.
Rainfall (on 16 days),	-	-	-	1.903 inches.
Greatest Daily Rainfall (on 10th),	-	-	-	.360 inch.
General Directions of Wind,	-	-	-	W., S.W.

Remarks.

This was an open, windy, showery month. Until the 14th and after the 22nd, deep depressions passed in rapid succession north-eastwards across the Norwegian Sea, causing strong S.W. and W. gales and frequent falls of rain, hail, and sleet. At 8 a.m. of the 12th the barometer read only 27.93 inches at Færder on the Christiania Fjord. Conditions were for the most part anticyclonic from the 14th to the 22nd, so that fog and frost were prevalent in that central period of the month. Some very sharp but transitory frosts were felt in Great Britain from time to time. On the 15th the thermometer fell to 3° at Lairg and 4° at Braemar in Scotland. On the 21st a minimum of 16° was recorded at Loughborough. In Ireland the air was much milder.

In Dublin the mean temperature (44.9°) was 2.1° above the average (42.8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 43.7°. In the twenty-nine years ending with 1893, February was coldest in

1873 (M. T. = 37.9°), and warmest in 1869 (M. T. = 46.7°). In 1886 the M. T. was 39.7°. In the year 1879 (the "cold year") it was 40.1°. In 1888 it was as low as 38.6°; in 1889 it was 40.3°, in 1890 41.5°, in 1891 44.7°, in 1892 41.3°, and in 1893 42.7°.

The mean height of the barometer was 29.906 inches, or 0.051 inch above the average value for February—namely, 29.855 inches. The mercury rose to 30.448 inches at 9 a.m. of the 20th, and fell to 28.867 inches at 8 p.m. of the 11th. The observed range of atmospherical pressure was, therefore, 1.581 inches—that is, a little more than an inch and a half.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 43.7°, or 3.6° above the value for January, 1894. Using the formula, $Mean\ Temp. = Min. + (max. - min. \times .50)$, the M. T. is 44.9°, compared with a twenty-five years' average of 42.8°. On the 7th the thermometer in the screen rose to 58.6°—wind, W.S.W.; on the 1st the temperature fell to 31.6°—wind, S.W. The minimum on the grass was 26.5° also on the 1st.

The rainfall was 1.903 inches, distributed over 16 days. The average rainfall for February in the twenty-five years, 1865–89, inclusive, was 2.150 inches, and the average number of rainy days was 17.2. The rainfall, therefore, was below the average, while the rainy days were also below it. In 1883 the rainfall in February was large—3.752 inches on 17 days; in 1879, also, 3.706 inches fell on 23 days. On the other hand, in 1873, only .925 of an inch was measured on but 8 days; in 1890, only .802 of an inch fell on but 7 days; and in 1887 only .541 of an inch fell on 11 days. The rainfall in 1887 was much the smallest which had been recorded in February for very many years. But the record for 1891 is probably unparalleled—.042 inch on 2 days. The nearest approach to this drought was in September, 1865, when only .056 of an inch of rain was measured on but 3 days. In 1892, the rainfall was 2.119 inches, on 19 days; and in 1893, 2.669 inches fell on 22 days.

Snow or sleet fell on 2 days—the 12th and 24th; while hail was observed on 4 days—the 11th, 12th, 24th, and 27th.

The atmosphere was foggy on 8 days—namely, the 5th, 14th, 18th, 19th, 20th, 21st, 22nd, and 26th. The amount of cloud—57.2 per cent.—was considerably in defect of the average—66 per cent. High winds were noted on 17 days, reaching the force of a gale on 8 occasions—namely, the 1st, 6th, 7th, 10th, 11th, 23rd, 25th, and 26th.

The temperature reached or exceeded 50° in the screen on 15 days, compared with 13 days in 1893, 6 days in 1892, and 14 days in 1891; while it fell to or below 32° in the screen on only 2 nights, compared with 5 nights in both 1893 and 1892, and with 2 nights in 1891. The minima on the grass were 32°, or less, on 10 nights, compared with 13

nights in 1893, 16 nights in 1892, and 17 nights in 1891. The thermometer never failed to rise to or above 40° in the screen during the day-time.

Lightning was seen on the night of the 11th. There was an aurora on the nights of the 23rd and 25th. Solar halos were seen on the 21st and lunar halos on the evenings of the 18th, 19th, 21st, and 22nd.

During the first three days of the month, open but changeable, stormy, and often rainy weather prevailed in the British Islands, and in Western Europe generally. On Thursday, the 1st, a rapid rise of temperature took place. It amounted to 20° in a few hours, and caused all traces of the snow which had fallen on January 30 quickly to disappear. After many hours of squally, blustering weather, a fine, bright day brought this very unsettled period to a close. Brilliant aurota was seen from Wick and Aberdeen on the night of the 2nd, when also lightning was reported from those stations as well as from Roche's Point.

At the beginning of the week ended Saturday, the 10th, conditions were quieter than of late, and mild, tolerably fine weather prevailed. Monday broke dull and foggy, but afterwards proved mild and bright. At this time an area of high pressure, in which readings exceeded 30.60 inches, lay over the west of France, and the barometer was low (29.20 inches) only in the North-west of Norway. On Tuesday, however, a new and deep depression had advanced to the Hebrides, Caithness, and the Orkneys and Shetlands, causing a rapid rise of temperature and fresh or strong gales from S.W., W.S.W., or W. in most parts of the British Islands. At 8 a.m. of Wednesday, the barometer ranged from 30.56 inches at Lyons to 28.36 inches at Bodø, in Norway. This great difference of 2.20 inches in atmospheric pressure accounted for the strong S.W. to W. winds and gales which swept over Western Europe at this time. Temperature ruled very high on Wednesday, the screened thermometer rising to 59° at Loughborough and in Dublin (58.6°), 57° in London (Westminster), and at Shields, Cambridge, and Yarmouth; and 56° or 55° at many other stations. The last three days of the week were cooler, but just as unsettled, and changeable—squally S.W. to W.N.W. winds, passing showers or heavy rains, and fine, bright intervals prevailing in rapid succession. Hail and lightning were reported from several Scottish stations on Wednesday and Thursday. In Dublin the mean height of the barometer was 29.901 inches, pressure rising to 30.382 inches at 9 a.m. of Monday (wind, W.S.W.), and falling to 29.338 inches at 9 p.m. of Saturday (wind, S.W.). The corrected mean temperature was 47.9° . The mean dry bulb temperature at 9 a.m. and 9 p.m. was 47.3° . On Wednesday the screened thermometers rose to 58.6° , having fallen to 40.0° on Monday. No frost occurred even on the grass. The rainfall was .751 inch, .262 inch falling on Thursday and .360 inch on Saturday. S.W. and W. winds again prevailed as in many past

weeks of the present winter. At 8 a.m. of Saturday the barometer read only 28.24 inches at Bodö, in Norway.

Opening with the same tempestuous weather which had prevailed for so long, the week ended Saturday, the 17th, closed with a more than half-fulfilled promise of finer and quieter conditions. After Monday the wind moderated, and the rainfall almost ceased for a time, while the period ended with a dry, bright, and spring-like day—at least in Ireland. Some very remarkable incidents have to be recorded in connection with the weather of this week. For example, on Sunday and Monday a storm-centre of exceptional intensity passed eastwards across Scotland and the southern half of Scandinavia. By 8 a.m. of Monday, the barometer fell to 27.93 inches at Færder, on the Christiania Fjord, while it stood as high as 30.31 inches at Lisbon. Very violent S.W. to W.N.W. gales accordingly swept over the British Islands, Holland, and Germany, accompanied by hail, thunder and lightning in several places—notably over central Ireland on Sunday night. A great dip in temperature followed in Great Britain, the thermometer falling on Wednesday night to 10° at Nairn, 20° at Aberdeen, and 26° in the Lowlands and North of England. An anticyclone, or rather a ridge of high pressure, passed on to Scandinavia from Great Britain on Thursday, and at 8 a.m. of Friday the barometer read 30.43 inches at Færder, or 2.50 inches higher than at the same hour four days previously. Such a vast range of pressure is very unusual in so short a time. By 8 a.m. of Saturday the barometer had risen to 30.59 inches at Færder. On Friday and Saturday a V-shaped shallow depression brought heavy rains to Great Britain. In Dublin the mean reading of the barometer was 29.832 inches, the observed extremes being—highest, 30.204 inches at 9 p.m. of Saturday (wind, N.W.); lowest, 28.867 inches, at 8 p.m. of Sunday (wind, W.). The corrected mean temperature was 44.0°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 42.8°. On Sunday the screened thermometers rose to 54.8°; on Tuesday they sank to 32.7°. Rain fell on four days to the amount of .198 inch, .169 inch being measured on Sunday. At 12.30 p.m. of Monday a severe squall of snow and hail passed over Dublin. Vivid flashes of lightning were seen on Sunday evening. The prevailing winds were W. and S.

For the first time for many weeks the weather was of an anticyclonic type during several consecutive days of the week ended Saturday, the 24th. On Friday, however, a large depression encroached on the Irish and Scotch coasts, causing a gale from S. and S.W. and a heavy fall of rain. At the beginning an anticyclone, in which the barometer exceeded 30.60 inches, lay over the Christiania Fjord, where six days previously pressure was below 28 inches (27.93 inches at Færder). A heavy rainfall had occurred in Great Britain, but the weather was rainless though dull and foggy in Ireland. As the hours passed by, the anticyclone spread

out westwards and southwards, so that on Monday morning it covered England, Ireland, and France. Very sharp frost prevailed for a succession of nights in England, but it was by no means so severe in either Scotland or Ireland. At Loughborough, in Leicestershire, the minima were 30° , 18° , 18° , 16° , 17° , 23° , and 30° . At Parsonstown, a central Irish station, the corresponding values were 29° , 30° , 33° , 33° , 34° , 35° , and 35° . A great deal of fog prevailed at night and in the mornings during the anticyclonic period, but this all cleared away with the coming of Friday's S.W. gale. On Friday night, bright aurora borealis was seen for many hours, waves of auroral light sweeping up to the zenith from the northern sky in rapid succession and with extreme velocity. Saturday was a bright, breezy, changeable day, with an occasional shower of sleetly rain and hail. In Dublin the mean pressure was 30.163 inches, the barometer rising to 30.448 inches at 9 a.m. of Tuesday (wind calm), and falling to 29.858 inches at 4 p.m. of Friday (wind S.W.). The mean temperature was 40.7° . The mean dry bulb reading at 9 a.m. and 9 p.m. was 38.9° . On Tuesday the screened thermometers fell to 31.8° , on Friday they rose to 51.8° . Rain fell on two days to the amount of .271 inch, .160 inch being measured on Friday. The wind was generally calm at first, but finally became fresh to strong from S.W. and W.

The weather remained very unsettled and stormy during the last four days of the month. A succession of very deep atmospheric depressions travelled across Scotland and the Norwegian Sea, while their secondaries passed over Ireland and England. Rain fell plentifully, and thunder, lightning, and hail or sleet prevailed over the more northern parts of the United Kingdom.

In Dublin the rainfall up to February 28, 1894, amounted to 4.741 inches on 89 days, compared with 4.908 inches on 41 days in the same period in 1893, 3.817 inches on 39 days in 1892, .714 inch on 16 days in 1891, and a twenty-five years' (1865-1889) average of 4.350 inches on 34.5 days.

At Knockdolian, Greystones, Co. Wicklow, 2.390 inches of rain fell in February on 15 days; the heaviest fall in 24 hours was .630 inch on the 11th. The total fall to February 28th inclusive was 6.780 inches on 39 days.

The rainfall in February at Cloneevin, Killiney, Co. Dublin, amounted to 1.19 inches, on 16 days. The average rainfall for February during 9 years at this station is 1.660 inches, on 12 days. The greatest rainfall in 24 hours was .17 of an inch on the 8th. Since January 1, the rainfall was 4.45 inches, on 41 days.

PERISCOPE.

ARMY MEDICAL STAFF.

THE following is the official list of successful candidates for commissions in the Medical Staff of her Majesty's Army at the examination held in London in February, 1894:—

Order of Merit	Names	Marks	Order of Merit	Names	Marks
1.	Evans, P.	- - 2,849	6.	Milner, F. E.-	- 2,360
2.	Silver, J. P.	- - 2,462	7.	Sweetnam, S. W.	- 2,360
3.	Buist, J. M.	- - 2,391	8.	Dove, F.	- 2,345
4.	Vaughan Williams H. W.	2,390	9.	Morgan, C. K.	- 2,282
5.	Walker, J.	- - 2,365	10.	Thom, G. H. C.	- 2,178

DR. WILLIAM HOWSHIP DICKINSON.

H.R.H. THE DUKE OF CAMBRIDGE has accepted the presidency of a committee which has been formed to present a testimonial to Dr. W. H. Dickinson on his retirement from the office of Senior Physician to St. George's Hospital, of which his Royal Highness is a vice-president. Among the members of the committee are the Duke of Westminster, the Earl of Cork and Orrery, Mr. Shaw Stewart, and Colonel Haygarth, vice-presidents of the hospital; Mr. J. R. Mosse, treasurer; Sir Henry Acland, Admirals Sir George Willes and Sir W. Houston Stewart, Sir George Humphry, Sir Francis Laking, Surgeon-General Cornish, and a number of Dr. Dickinson's past and present colleagues, and pupils and former students of the St. George's Medical School.

SUSCEPTIBILITY TO HYPNOTISM.

THE late Professor Charcot maintained that only hysterical persons are capable of being hypnotised. In opposition to this view, "Mr. Thos. Crisfield, *Masseur, &c.*," in a tract entitled *The Value of Hypnotism*, states that the Salpêtrière methods were unsuited to those who were not hysterical; that the state of the Salpêtrière patients was rather one of *fear* than of true hypnosis, and altogether different from the "calm, peaceful, soothed and restful" condition of the Nancy subjects. "And certain it is also that from 80 to 90 per cent. of mankind are found to be susceptible to one or another of the degrees of hypnosis when these means are adopted, and the patient complies with the conditions which, if Professor Charcot's assertion was correct, would raise the percentage of hysterical persons to the height of absurdity. Professor Bernheim considers that those who cannot hypnotise at least 80 per cent. of their patients are not competent judges of hypnotism. Professor Forel, of Zurich, is of the same opinion.

Out of 1,012 patients of both sexes, of all ages and temperaments, who presented themselves to Dr. Liébeault in one year, only 27 proved unhypnotisable. Professor Delboeuf succeeds in over 80 per cent. of his cases. In England, while the proportion of somnambulists is not so great as that on the Continent, the percentage of persons susceptible to hypnosis is about the same. Dr. Tuckey succeeds in over 80 per cent. of his cases. Drs. Kingsbury and Bramwell average about the same. My own experience is, that while all patients are not hypnotised at the first séance, not more than from 10 to 15 per cent. prove refractory; while the somnambulists, out of the very large number I have hypnotised, in all stations of life, would be about 15 per cent. This, I think, proves conclusively that instead of a 'very small proportion' it is the *very large majority* who are susceptible to hypnosis."

"THE CHICAGO CLINICAL REVIEW."

We have received the "College Number" of this monthly, so called because it is intended to "describe briefly and partly to illustrate the improvements made of late by the medical educational institutions of Chicago." Among these improvements is the advance in the fortunes and position of the Northwestern University Woman's Medical School. In 1866, and again in 1868, women were firmly refused admission to the Rush Medical College. In 1869, two ladies, who had attended one course of lectures at the Chicago Medical College, were informed that the male students objected to them and they must retire. Prof. Byford, member of the Faculty, then set to work and organised the Woman's Medical College, in which the first course of lectures was delivered in 1870 "to less than a score of matriculants." Now the laboratories can accommodate forty students; the dissecting-room is provided with thirteen tables, and clinical instruction is abundantly provided. The School requires four years' study.

TYRONE COUNTY INFIRMARY.

We are indebted to Dr. Edward Thompson for a copy of the latest Annual Report of the Tyrone County Infirmary. The existence of the county infirmaries is precarious—dependent, we understand, on grants made by grand juries from year to year. Evidence, such as this Report supplies, of the efficient working of these ancient but not obsolete institutions strengthens the hands of those who labour for their retention. The ordinary alternative to the county infirmary is the union hospital, to which our poor have a natural, laudable, and almost invincible objection. In this case of Tyrone, the County Infirmary received for treatment, in 1892, 574 in-patients; in addition to which Dr. Thompson voluntarily and gratuitously treated 2,587 out-patients. The total cost was only £1,663; each occupied bed costing an average of £36 1ls. annually,

and each patient £2 17s. 11d. In 17 years 8,562 patients have been admitted. In the twelve years since Dr. Thompson established an out-patient department, nearly 22,000 cases have been treated. A somewhat invidious comparison is drawn between the annual cost of an occupied bed in Omagh—taking the average of the seventeen years—(£35 1s. 6d.) with the £55 to £85 of our Dublin hospitals.

THE MEDICAL PROFESSION IN FRANCE.

IN a report presented to the French Senate by Professor Cornil, some interesting statistics are given respecting the number and distribution of medical practitioners in France between 1847 and 1891. In the former year there were in the whole of France 17,400 practitioners, of whom 10,268 were Doctors of Medicine and 7,233 *officiers de santé*. In 1891 the total number of practitioners had fallen to 15,046, the decrease, however, being confined to the class of *officiers de santé*; the number of Doctors of Medicine had risen to 12,553. The proportion of the latter to population varied from 1 to 1,287 in the Seine department to 1 to 7,669 in the Haute-Loire department, the average being 1 to 3,000. The proportion of *officiers de santé* to population, on the other hand, averaged 1 to 17,000.—*Medical Record*.

POST-MORTEM PARTURITION.

DR. H. ROSAHUSKY, of New York, writes to the *Medical Record*:—"Ten years ago I was appointed by the Russian Government as country physician to the city of W——. While there I saw a case where a young woman died in full term of pregnancy. On the second day after death the country people of that place took the cadaver and put it in a hot Russian vapour bath at 80° Réaumur for two days, and had an old woman to watch it. On the evening of the second day the abdomen was fully distended and uterine contractions occurred, as if in a live subject, and the child was expelled. The woman also delivered the placenta. In some parts of Russia there is a law that women who have died pregnant shall not be buried until the delivery of the child has taken place. It is also a custom among the Russian peasants, when a woman dies in the beginning or middle of pregnancy, to put clothes in the coffin for use, in case the woman should deliver herself at the expiration of her full term."

LEVITICAL LEPROSY.

DR. C. C. BOMBAUGH, of Baltimore, read a paper before the Johns Hopkins Hospital Historical Club on the Plagues and Pestilences of the Old Testament. The whole paper (printed in the *Johns Hopkins Hospital Bulletin* for June-July, 1893) will be found most interesting. We extract the following from that portion of it which treats of the Mosaic "leprosy":—"It should be noted that however multiform the lepra of

the Mosaic record, it was a cutaneous disease broadly contradistinguished from the constitutional malady which, in its progress, implicates the whole organism, and is sure, sooner or later, to terminate fatally. At one time, as we infer from the Levitical text, it is a leucoderma or vitiligo; at another it closely resembles psoriasis; here are squamous patches, there rough incrustations; here is diffused inflammation, there excoriation of the surface with exudation of serum and blood. But let it take what shape it might, it was evidently non-contagious, and even with the slender armamentaria of that early day, it was curable. It must have had little in common with that formidable, transmissible, bacillary disease which we call leprosy; it was unlike the elephantiasis of the Greeks or the Arabs, running more in the direction of atrophy than hypertrophy of the lower extremities; it exhibited no such extent of degenerative change, of destruction of substance, of disorganisation and disfigurement as those of the lepra mutilans."

"THE CANADIAN PRACTITIONER."

THIS monthly periodical, published at Toronto, is in its eighteenth year. It gives 72 well-printed, substantial octavo pages for an annual subscription of two dollars. The contents of the issue before us are of the usual character. There are 15 pages of original matter, exclusive of 5 pages of editorials—the latter mostly of local interest. The greater part of the number is devoted to extracts—selected, in each department of practical medicine, by one or more special assistants. The editor is Dr. Adam H. Wright.

CASE OF ACROMEGALY.

DR. CHARLES L. DANA presented [at a meeting of the Medical Society of the County of New York] a brain which he spoke of as the brain of a pathological giant, it being that of the Indian who had died very recently in Bellevue Hospital. The man had been reported to be 8 feet high, and to weigh 350 pounds, but his actual height was 6 feet 7 inches, his weight 300 pounds. He died suddenly, the immediate cause not being known. The brain was a little above the average size, weighing 53 ounces. There was great enlargement of the pituitary gland. Bodily measurements showed the case to be one of acromegaly, and not one of great size from normal growth. This fact was an interesting one, inasmuch as increase in size of the pituitary gland was usually present in acromegaly. It was probable that many cases being exhibited throughout the country as giants, were cases of acromegaly with enlarged pituitary gland.—*Medical Record.*

OLIVE OIL IN SATURNINE POISONING.

The Gazette Médicale de Paris, of 23rd Sept., 1893, contains a paper by Dr. F. Combemale on the treatment of saturnine colic with large doses of olive oil. He complains that the ordinary purgative methods are open to the

reproach of "une certaine brutalité d'action," and are directed to the relief of one prominent symptom. The indication in most cases is twofold, to clear the intestine and to relieve pain. Scientific treatment should effect both objects simultaneously. In the somewhat analogous case of hepatic colic the double indication has been fulfilled by olive oil. M. Weil, of Lyon, claims to have been equally successful by the same means in the treatment of lead colic. In his five cases, cure both of the colic and the constipation seems to have been effected in five days by daily doses of 50 grams of the oil.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Foods for Diabetes Mellitus and Gouty Dyspepsia.

MESSRS. CALLARD, of 65 Regent-street, London, W., have forwarded to us a box of samples of their foods for diabetics, the obese, gouty, and dyspeptic. The unpalatable gluten and bran foods, to the use of which the unhappy diabetic patient is condemned, are too well known to need description. They are often enough to correct the boulimia, or voracious appetite, of diabetes mellitus. Callard's diabetic foods are not of this kind. They are most skilfully prepared, are free from starch and sugar, as may be tested by a weak solution of iodine in water, and are really palatable and nutritious.

The preparations submitted as samples are gluten cracknels, gluten and almond biscuits, cocoa-nut biscuits, bran biscuits, sweet almond biscuits, and sponge cakes. The sweetening agents employed in the manufacture of the cocoa-nut and almond biscuits is gluside (saccharin). The almond sponge cakes and the almond pound cake are sweetened with a little glycerine. All these cakes and biscuits are made with eggs, and hence are exceedingly nourishing. They are attractive in appearance and tempt the appetite.

Condensed Milk.

The Anglo-Swiss Condensed Milk Company have sent us a series of samples of their "Milkmaid" brand of condensed milk (Swiss and English), and of their preparations of condensed milk with coffee, cocoa, and chocolate. The company have now extensive factories at Cham and Guin, in Switzerland; Lindau, in Bavaria; Chippenham, Aylesbury, and Middewich, in England; and Middletown, New York, and Dixon, Illinois, in the United States. In these eight factories the milk of 30,000 cows is daily converted into condensed milk.

As soon as the milk is drawn from the cow it is refrigerated. On reaching the factory it is heated to boiling point, and the best crystallised

refined sugar is added in the correct proportion. The milk is then condensed at a low temperature in a vacuum pan. When reduced to the proper consistency, the condensed milk is drawn off into cans, in which it is slowly cooled while being stirred all the time by a very simple but ingenious mechanical arrangement. After it is thoroughly cooled, the milk is tinned and so made ready for the market. The average daily output of the company's factories is about 8,000 cases, each containing 48 one-pound cans. There is one pound of condensed milk in each tin, and the tin itself weighs about $2\frac{1}{2}$ ozs. The manufacture of the tins alone costs £70,000 a year, and 50,000,000 tins of condensed milk are turned out by the company in the year.

Samples of the "Milkmaid" brand were recently examined by Dr. Bernard Dyer, F.I.C., F.C.S., and found by him to contain from 10·63 to 11·95 per cent. of fat (cream). This analysis is conclusive as to the nourishing value of this brand of condensed milk. In its manufacture nothing is taken away from it but water, and nothing is added except sugar—as much cannot be said for some of the many brands of condensed, separated, or skimmed milk which are also in the market.

The combinations of the Anglo-Swiss condensed milk with coffee, cocoa, and chocolate are all useful and convenient preparations.

Preparations of the Natural Digestive Ferments.

The special foods for invalids, children, and infants, manufactured by the firm of Messrs. F. B. Benger and Company, of the Otter Works, Manchester, are so well known and so justly appreciated that any notice of them at this time of day seems almost superfluous. Specimens of Benger's food, peptonised beef jelly, and peptonised chicken jelly have lately been placed in our hands. The "food" is very palatable, digestible, and nutritious. It is readily taken by young children, as well as by invalids of all ages. When mixed with warm milk, or milk and water, the natural digestive principles it contains become active, the casein of the milk is so modified in consequence that firm indigestible curds cannot form in the stomach, and the farinaceous elements of the food are rendered soluble. Prepared in the way described, Benger's food forms a delicate and highly nutritious cream, which is easily assimilated even when the stomach is weak or out of order.

The peptonised jellies are delicately flavoured, concentrated, partially digested and solidified preparations, which contain (besides the salts and flavouring principles) much of the fibrin, or flesh-forming elements, of the beef or chicken in a soluble form, fit for immediate absorption. The jellies can be taken in teaspoonful doses, cold as a jelly, or dissolved in a little hot water. They may also be used to strengthen or enrich ordinary soups or broths. They are sold in ornamental patent glass jars, at a retail price of two shillings per jar.

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

MAY 1, 1894.

PART I. ORIGINAL COMMUNICATIONS.

ART. XIV.—*Arithmetic, Geometric, Harmonic, and Quadratic Means.* By SIR CHARLES A. CAMERON, F.R.C.S.I., &c.

It is frequently necessary in making a series of medical or other observations, to the results of which a numerical value can be assigned, to deduce a mean value for the whole series of observations, and to draw conclusions, one way or the other, based on this mean value of the series.

As the accuracy of the conclusions drawn depends in a very great measure on the accuracy of the observations, and on these again depend the mean value deduced, I shall point out those instances in which the application of this method is suited to the case under observation, and, when suited, the *modus operandi*, and the precautions to be taken in order to avoid error as much as possible.

In the first place, there are some statements of mean value from which no conclusions of any value can be drawn—as when, for example, it is stated that the average age of two persons is 40. Here the age of the younger may be any number of years from 1 to 40, and of the older from 79 to 40. All that we are sure of in this case is that one, at least, of the persons is 40 or more. So

when there is a great divergence in the numbers, the average of which is being sought, so much the less must there be confidence placed in the mean value of these numbers.

To take another example—two parties of riflemen, consisting of three in each party compete; the one party scores 84, and the other 79. What conclusions can be justly drawn in this instance? Only one, from the amount of information thus supplied—viz., that the total scored by one party exceeded that scored by the other, the obvious conclusion; but there is no information as to the individual scores, and we are not justified in saying that there were better riflemen in the winning party than in the other, as these totals may have been made up as follow:—

$$84 = 30 + 28 + 26 \quad \text{and} \quad 79 = 35 + 33 + 11.$$

It is obvious that were the mean values given in each of these instances—viz., 1st party, 28; 2nd party, 26·3—no more information could be gained respecting the individual competitors than is given by the totals.

There is another case which occurs sometimes in the comparison of two series of observations, which may be illustrated by reference to two series of researches published by Boecker.* He gave to an individual, whose diet was in other respects exactly estimated, a certain quantity of sarsaparilla daily, and found that the quantities of urine passed were in cubic centimetres as follow:—

1467	1744	1665	1220	1161	1369
1675	2129	887	1643	934	2093

During a second series of 12 days the individual experimented on took, instead of the decoction of sarsaparilla, his dietary remaining the same, as much distilled water, when the quantities of urine were as follow:—

1263	1740	1538	1526	1387	1422
1754	1320	1809	2139	1574	1114

These numbers are assumed to represent accurately the quantity of urine excreted by the individual. The question that arises, therefore, is—has the decoction of sarsaparilla influenced the excretion of urine or not; and, if it have, whether to increase or diminish that excretion? Upon examining each series of numbers separately it may be noticed that there are very great fluctuations in the numbers themselves. There does not appear to be any steadily augmenting or diminishing agency at work influencing

* See Reil's *Journal für Pharmacodynamick und Toxicologie*. Vol. II, Parts I. and II. "On the Action of Sarsaparilla."

the excretion of the urine; but the numbers registered on each succeeding day may be either greater or less than on the previous. Under such circumstances great caution must be exercised in accepting the mean values of the two series as at all representing the influence of the application of the sarsaparilla or its withdrawal. This doubt as to the means taken by themselves, representing the true influence of the sarsaparilla, is increased when it is found that if the means be taken for the first eight days of each series they are negatived by the respective means of the whole twelve of each series; and that if we suppose the numbers obtained on the thirteenth day to be the same as those obtained on the twelfth, the relation of the two series to one another is again reversed. Such a result as this might have been expected from the first, when it was seen that there was no appreciable relation existing between the numbers registered on each succeeding day; and, therefore, the inference to be drawn in this case is that whatever the influence of the sarsaparilla might have been, its influence was so much counteracted or otherwise by other agencies at work as to render it impossible to draw any inference in the case under observation.

So far the examples given have been those in which the application of the arithmetic mean has not been suited to the case chosen, or only partially; but there are a great many cases in which, when used with caution, the arithmetic mean, or pure average, is a valuable adjunct in experimental research. Take one or two instances in which it is only possible to express a general result by giving the average of a long series of observations, and be it borne in mind that the more extended the series of observations the nearer we approach to a mean value, from which there is little or no divergence.

It is stated that the annual rainfall in the Thames basin is 26 inches. Now by this statement it is neither meant that 26 inches of rain fell on every portion of the floor of the basin, nor that the amount of rain which falls each year over this area is invariably the same. By this statement is meant, that if the total amount of rain which has fallen during many years on the portion of England drained by the Thames and its tributary streams had accumulated, none of it being lost by evaporation or percolation through the soil, and if the number representing the height at which that water would stand, supposing the whole area to be level, were divided by the number of years during which the

observations had been made, then we should find that each division would be represented by a height of 26 inches. It is obvious that this method represents to the mind in the most concise manner the general character of the rainfall over this area, and that it also furnishes a ready and sufficiently accurate estimate upon which other calculations of a cognate character may be based.

So much having been said on the value of the arithmetic mean, when judiciously employed, it is as well to state now that besides the arithmetic mean there are various other means—such as the geometric, harmonic, and quadratic means; and perhaps the simplest method of explaining to the non-mathematical reader the differences that exist between each of these means will be to indicate the methods by which they can be discovered. Let it be required to find the arithmetic mean of the numbers 3, 6, 9, 4, 13. In order to do this these numbers must be added together, and the sum divided by the number of addenda, as, total of the numbers, 35, which divided by the number of addenda (5) is equal to 7. Seven is, therefore, the arithmetic mean of the numbers 3, 6, 9, 4, 13.

It will be seen that the mean relation that 7 bears to these numbers may be exemplified by showing that, if all the numbers less than 7, as 3, 6, 4, be subtracted from 7, and the remainders be added together, the sum of the remainders obtained will be equal to the sum of the remainders obtained when 7 is subtracted from each of the numbers greater than itself, as 9, 13. Thus, $4 + 1 + 3 = 2 + 6$. Therefore 7 bears a mean relation to the numbers 3, 6, 9, 4, 13.

Let it be required to find the geometrical mean of the numbers 3 and 12. To do this the numbers are to be multiplied together, and such a root extracted as is indicated by the number of separate multipliers, as $\sqrt{12 \times 3} = \sqrt{36} = 6$. This operation may be expressed in more general terms by stating—If n represents the number of individual factors, the geometric mean of which is required, the n^{th} root of the product of these factors is the geometric mean of the factors.

In order to show that 6 bears a mean relation to 12 and 3 it is necessary to show that 3 bears the same ratio to 6 as 6 does to 12.

$$3 = \frac{6}{2}, \quad 6 = \frac{12}{2}; \quad \text{or, } \frac{3}{6} = \frac{6}{12} = \frac{1}{2};$$

or again, 6 is the double of 3, as 12 is the double of 6; or still

again, 6 is as many times greater than 3 as 12 is greater than 6. Therefore 6 holds a mean ratio between 3 and 12.

$\frac{3}{12}$ represents the ratio of 3 to 12,

$\frac{12}{3}$ " " 12 to 3,

and $\frac{6}{6}=1$ is the geometric mean of these.

Let us take into consideration the geometric mean of three numbers—for instance, 4, 6, 9. The geometric mean

$$= \sqrt[3]{4 \times 6 \times 9} = \sqrt[3]{216} = 6.$$

It so happens in this instance that the geometric mean of the three numbers is one of them—that one which bears the same relation to the first that the last, or greatest, does to it. But does it always happen that the geometric mean of three or more numbers holds an intermediate position between the greatest and least numbers in the series? Let us consider this point. As the extraction of a root is a kind of converse operation to that of the multiplication of the factors, from which the product has been obtained, and as the root is always such a number as, when multiplied as many times by itself as is indicated by the index of the root, will produce the product, it follows that the root must always be some one number, which, when multiplied a certain number of times by itself, will produce the number from which it has been extracted—or, in other words, the number obtained by the multiplication of the several factors. But as these factors may vary greatly in magnitude among themselves, and the root can be only a single number, it follows that this single number must be greater than the smallest factor, and less than the greatest; indeed, that it must hold an intermediate position amongst all the factors. If there be many large factors, the larger the mean will be; if there be more factors small numbers than the number of the large factors, the smaller the mean will be. This will probably be better illustrated by taking an example. The geometric mean of 4, 6, 9 is 6—i.e., if we take the product of $4 \times 6 \times 9$ and extract the cube root we obtain 6. Now, if we take the product of $4 \times 7 \times 9$ we evidently obtain a greater product, and the cube root will in consequence be greater—i.e., nearer to 9. If, on the other hand, we take the product of $4 \times 5 \times 9$ we evidently obtain a smaller product, and, on the extraction of the cube root,

a smaller number, or one nearer to 4; but we could never obtain 4 unless all the numbers were 4—i.e., $4 \times 4 \times 4$ —and we could never obtain 9 unless all the numbers were 9—i.e., $9 \times 9 \times 9$; and the greater the other numbers are the greater will be the geometric mean, and the less the less. Therefore the geometric mean must always hold a mean position in any series of numbers.

The geometric mean cannot differ, therefore, much from the arithmetic mean, and this may be easily seen by reference to the numbers 4, 6, 9, the arithmetic mean of which is $6\frac{1}{3}$, while, as already stated, its geometric mean is 6.

Few words only are required in explanation of the harmonic mean, as its application is inappropriate in the cases of which we are taking cognizance; but as we are discussing means we may as well refer to this one also.

Whenever the product of two numbers is unity these numbers are said to be reciprocally related to each other, or reciprocals; or, more concisely, it may be stated that the reciprocal value of a number may be found by dividing unity by that number. Thus a number, unity, and the reciprocal of that number are in geometric progression, while the reciprocals of numbers in harmonic progression are in arithmetic progression. The harmonic mean may, therefore, be found for a series of numbers by taking the reciprocal value of the arithmetic mean of the reciprocals of those numbers. To take an example—let it be required to find the harmonic mean of 3 and 12. The reciprocal values of these numbers are $\frac{1}{3}$ and $\frac{1}{12}$, and the arithmetic mean of $\frac{1}{3}$ and $\frac{1}{12}$ equals $\frac{\frac{1}{3} + \frac{1}{12}}{2} = \frac{4+1}{24} = \frac{5}{24}$, and the reciprocal of $\frac{5}{24} = \frac{24}{5} = 4\frac{4}{5}$. Therefore, $4\frac{4}{5}$ is the harmonic mean of 3 and 12.

A fourth mean is the quadratic mean. This mean may be defined as equivalent to the square root of the arithmetic mean of the squares of the given numbers, and may be found in the following manner:—

Let it be required to find the quadratic mean of 3 and 12. According to the definition the quadratic mean of 3 and 12 is equivalent to the square root of the arithmetic mean of the squares of the given numbers—that is, the mean of 3^2 and 12^2 . $3^2=9$, $12^2=144$; $144+9=153$, and the arithmetic mean is equal to $\frac{153}{2}=76\cdot5$, the square root of which is 8.75.

It will be fitting to institute in this place a comparison between

the arithmetic and quadratic means, and to point out those cases in which the application of one is preferable to that of the other.

The arithmetic mean of 3 and 12 is $7\frac{1}{2}$.

" " " 3, 9, 8 is $6\frac{2}{3}$.

" quadratic " 3 and 12 is $8\cdot75=8\frac{3}{4}$.

" " " 3, 9, 8 is 7·16.

It will be seen that in each of these examples the quadratic exceeds the arithmetic mean; and it may here be remarked that it can be exactly and mathematically demonstrated that the quadratic always to a certain extent exceeds the arithmetic mean, and that this excess is in proportion to the inequality of the given numbers. The nearer the given numbers approach equality the nearer does the quadratic mean converge to the arithmetic mean; and the greater the inequality of the numbers the greater the difference between the two means; and when the given numbers arrive at equality the two means are identical.

We will turn this peculiarity of the quadratic mean (which, however, is also shared in by the geometric and harmonic means) to use in the estimation of what may be called the probable error in a series of estimations of the value of a definite fixed quantity—such, for instance, as the percentage of carbon in a given substance.

It is well known to chemists that, however cautious and experienced they may be, and however accurate be the balances employed by them, in quantitative analysis there is always some error in their weighing, be that error small or great; and that when an estimate of great nicety has to be made it is necessary to frequently repeat the experiment, and on some occasions to employ various methods of analysis. It will be the object of this paragraph to point out a method of estimating the mean error in a series of observations.

One of the best methods is by what is called "the method of successive means." A large number of determinations having been made, in which it is presumed that the error is as likely to be on the one side of the normal as on the other, and that those on one side are as nearly equal as possible to those on the other, we take the means successively of the first two numbers, then of the first three, first four, and so on, in each case, to about four places of decimals, when we shall find that the successive means will coincide in their whole numbers, but that they will differ in their first decimal place. By continuing the process far enough the

first decimal will agree, then the first two, then the first three, and ultimately the first four; but the observations should have been carried out to many hundreds in order to secure this result. As an example of this we will take a series of numbers from a paper by W. Kaupp, "On the Dependence of the Amount of Chloride of Sodium in the Urine upon that in the Food." The series is as follows:—

24.300	24.173	23.340	23.600	26.057	23.101
24.511	23.343	26.400	22.650	23.590	23.644

Although this is not a case of the measurement of a definite fixed quantity, it will furnish us with an example of the accuracy of the mean as indicating the probable value of a fixed quantity. By taking the successive means we get—

As the mean of the first 2 days	24.2365
"	23.9377
"	23.8533
"	24.2940
"	24.0950
"	24.1544
"	24.0530
"	24.3138
"	24.1474
"	24.0967
"	24.0590

It will be seen that after the third mean all those following agree in the whole number, 24. This number may be taken as certain. The numbers differ in their decimals, but in no place is the difference greater than .4. We may, therefore, assume that the mean lies between $24 + .4$ and $24 - .4$; i.e., if we take 24 as the round number the limit of uncertainty will be .4. Taking the arithmetic mean of the first decimals as the basis for a general mean, the successive means, leaving out all but first decimals, are 24.2, 23.9, 23.9, 24.3, 24.1, 24.2, 24.1, 24.3, 24.1, 24.1, 24.1, consequently the arithmetic mean of the series = 24.1, and the greatest divergence from 24.1 is only .3; 24.1 is the value of the mean, with an uncertainty = .3.

ART. XV.—*On the Treatment of the Pulps of Teeth with Sublimate.** By ARTHUR W. W. BAKER, M.D., F.R.C.S.I.; University Examiner in Dental Surgery.

IT may, perhaps, be familiar to members of this Club that it is frequently necessary in dental practice, in order to save teeth, to devitilise the nerve, or tooth pulp, as it is more correctly termed. The drug we most frequently employ for this purpose is some preparation of arsenious acid (As_2O_3). The preparation which I generally use is arsenic made into a paste with creasote and a little morphia.

At subsequent visits the devitalised pulp is removed with small barbed broaches, while the root canal is rendered aseptic and filled. Under these circumstances, although the pulp is removed the root is not dead, as it still maintains its connection with the root membrane, and may be retained for a considerable period as a useful organ.

While such a method of treatment as I have mentioned is comparatively easy to carry out, as far as regards teeth with single roots, such as we have in the front of the mouth, it is not quite so simple when we come to deal with the bicuspids, and its difficulty increases in direct ratio as we approach cavities situated on the distal surface of the wisdom tooth, and as we are called upon to treat the pulp in the buccal roots of upper molars and the anterior roots of lower molars.

Consequently, dentists have for some time been experimenting in the direction of finding some substance which, when applied to the pulp, would embalm it, and at the same time leave it *in situ*, as the most perfect root-filling. I may mention that under ordinary conditions if devitalised pulp is left in the root of a tooth it sooner or later becomes septic, and suppuration follows in the root membrane.

In the August number of the *Dental Cosmos* for 1890, Professor Miller, of Berlin, published an interesting series of experiments, conducted with the object of determining what antiseptic was the most suitable for the purpose of preventing decomposition of the pulp. He employed for his experiments the pulps of calves' teeth, which he introduced into small glass tubes open at both ends, one

* Read before the Dublin Biological Club, March 6, 1894.

end being drawn to a point—in short, there was a glass tooth in which the whole process could be observed. The pulp in this glass tooth was then infected at one or both ends, the antiseptic to be tested placed in the larger end in contact with the pulp, covered lightly with a little plug of cotton, sealed with wax, and dropped into a test tube partly filled with agar, the small tube being allowed to penetrate a short distance into the agar. The test tube was then plugged with cotton, capped with a rubber cap, and placed in an incubator. In this way the penetrating power of the antiseptic could be easily seen. After a certain time these pulps were removed from their tubes, placed on plates of agar, and the development of bacteria noted.

In this way, up to August, 1890, Professor Miller had made 393 separate experiments, in which he tested the action of chloride of lime, oil of wintergreen, oil of peppermint, oil of cinnamon, chloride of zinc, iodoform, borax, boric acid, salicylic acid, benzoic acid, thymol, carbolic acid, chlorphenol, α - and β -naphthol, hydro-naphthol, campho-phenique, soziodol, Lyster's new antiseptic, sulphate of copper, iodol, sulphocarbonate of zinc, cyanide of mercury, resorcin, and many other antiseptics of more or less repute.

When at the International Medical Congress in Berlin my friend, Professor Miller, kindly showed me some of his experiments then in progress in his laboratory at the Dental Institute. Believing that this method of treating pulps was likely to be of use in certain cases, I determined to try the perchloride of mercury in practice, it being the drug which seemed to offer most chance of success. The cases which, in my opinion, justify this method of treatment are those—

1st. In which it would be impossible to reach the roots without removing so much of the tooth as to materially weaken the organ and render it liable to be broke in mastication.

2nd. Where the removal of the root pulp would cause the patient an amount of pain out of proportion to the value of the tooth.

3rd. In hospital cases, where the ordinary operation of filling roots is rendered impossible by the patient being unable to attend sufficiently often.

With regard to the cases in which I have tried this method of treating pulps I have notes of 25 consecutive cases, ranging over the first ten months of 1891. As I have been unable to trace

the further history of four of these cases I have not included them in the table which I have drawn up.

The method adopted was—in the first place to devitallise the pulp with arsenic. This was done in all cases but one, to which I shall refer later. At the next visit the arsenic was removed and the cavity prepared for filling. On the devitallised pulp were placed a few crystals of sublimate, covered with a little pledge of cotton soaked in alcohol, sealed with oxyphosphate of zinc cement, and the remainder of the cavity filled in with amalgam or cement.

The 21 cases which I have tabulated vary in age from 14 to 50—of these 7 were males and 14 females. The teeth treated comprise 9 bicuspids and 12 molars—of these teeth 15 were in the lower jaw and 6 in the upper. In 13 of these cases I have been able to verify their actual condition by personal observation, but in 8 I have had to rely on replies by letter to the following questions:—

1. Have you had any pain which you were able distinctly to refer to this tooth?
2. Has any swelling or gumboil formed close to its root?
3. Does it present any appreciable difference in colour to its neighbours?

In these cases I have been able to ascertain their subsequent history at periods varying—

Between 5 and 12 months in 12 cases.

„	1 „	2 years	„	5 „
„	2 „	3 „	„	4 „

These records show that of the 21 cases 17 were successful—that is to say, that the tooth was perfectly comfortable, and that there was no evidence of the patient having had any inflammation about the root when last observed. Although of these cases which I think I may fairly claim as successful I was not able to observe 7 for periods longer than from 7 to 12 months, still, viewing them in the light of the cases I have been able to observe for a longer period, if inflammation were likely to occur about the root there would have been some evidence of it during the period when they were under observation.

Of the three cases in which there has been slight periodontitis it has never amounted to more than temporary inconvenience, not preventing the use of the tooth at other times, and is a condition which sometimes follows the more usual method of root-treatment. In one of these three cases I may remark that the patient had had

an attack of periodontitis prior to my treatment, which, of course, would render its recurrence extremely probable.

The application of the perchloride of mercury to a pulp is said to cause a good deal of pain for a short time. I have only observed slight pain in two cases. This absence of pain was rather striking in one case where I applied sublimate, without a previous application of arsenic. The patient was a young soldier, who came to me in a good deal of pain with a lower molar. In removing the decay I accidentally exposed the pulp, which revealed a minute abscess of the anterior cornu. I at once applied sublimate to the pulp, and filled the tooth; he returned the next day, saying he was perfectly comfortable. Thirteen months later he wrote to me saying that the tooth, while of an ashy grey colour, had always remained comfortable.

The colour which the tooth that has been treated with sublimate assumes is decidedly objectionable; but as this method is only used towards the back of the mouth, where appearance is of less consequence, and when it becomes a question between discoloration and losing the tooth, I think we may fairly put aside æsthetic considerations.

One case, however, was a complete failure; at the same time this case is so instructive, showing what takes place when there is no antiseptic in contact with the pulp, that I may be excused if I inflict on you its history:—

CASE.—In November, 1891, a medical friend came to me with an inflamed pulp in a left lower first molar; the cavity was situated at the distal surface of the tooth. I applied arsenic, and sent him away. The application of arsenic caused a considerable amount of pain for some hours—in fact, he said it was the worst pain he had ever suffered. Subsequently I treated this pulp with crystals of sublimate, covered with a little plug of cotton, sealed the pulp chamber with cement, and filled in with amalgam. This tooth was never quite comfortable, the patient constantly complained of a certain amount of inflammation in the root membrane, so that five months later I was obliged to remove the tooth, as the patient had a severe attack of throbbing pain, which, combined with tenderness on pressure over the root, indicated commencing apical abscess.

Dr. Ball kindly gave gas, and I removed the tooth. On examining the tooth I found the filling perfect in every respect; there was a patch of inflamed root membrane on the posterior root, but no evidence of pus. The tooth was of a greyish colour, but darker as regards the posterior

root. I washed it in water and placed it in sublimate lotion for a short time. I then split the tooth with a sterilised forceps, holding it in sterilised bibulous paper, and found that the lower two-thirds of each root contained pulp alive and deeply injected, while the upper third of each root and the pulp chamber contained pulp in a condition of black moist gangrene, having its characteristic odour.

From the contents of the pulp chamber I made plate, line, and stick cultures on both gelatine and agar, also potato cultures; the result gave an almost pure culture of *staphylococcus cereus albus* (of which there is an impression preparation under the microscope). The conclusion that I came to from the examination of this tooth was, that in my anxiety to place as small a quantity of sublimate as possible in the tooth I had put in almost none, or that it possibly got displaced in filling the tooth. My experience in this case pointed forcibly to the fact that crystals of sublimate were difficult to manipulate successfully in awkwardly situated cavities, and that some more convenient form of the salt must be found; also that the question of the dose necessary to permeate the pulp must be determined. With these two objects in view I repeated Professor Miller's experiments on a small scale.

For purposes of experiment I procured the lower jaw of a calf, or, more properly, what is known in the trade as a beast—that is, an animal with the first permanent molar lately erupted—the molar pulp, consisting of four or five separate lobes, each practically a pulp complete in itself, being very convenient for this sort of work. For the little glass tubes in which they were placed I am indebted to my friend, Dr. Piel, who kindly manufactured an abundant supply. The pulps were introduced with a thread into the small tubes, infected from a mixture of recently extracted teeth in water, through the larger opening of the tube, treated or not with sublimate, covered with a little ball of wool, sealed with wax, and dropped into a tube of agar, as I have already described.

In these experiments I tried the effect of a paste composed of 5 grammes of sublimate, a little gum tragacanth, and a few drops of glycerine.

I took five tubes containing pulps all infected. To No. 1, which was the control tube, no sublimate was added; it was placed in the incubator standing at 35°C., and at 10 and 24 hours later respectively its appearance was unchanged, being red and vascular. At the end of a week the agar in the test tube was partly lique-

fied, the cotton wool in the small tube nearly black, and the pulp itself gangrenous and foul-smelling. It was transferred to a plate of agar, and again placed in the incubator. At the end of two days colonies of various sorts had developed all round, while a month later the pulp had completely gone to the bad, and the colonies had extended halfway across the plate.

To tube No. 2 I applied $\frac{1}{8}$ grain of sublimate in powder, also placed in the incubator, and observations at the end of 10 and 24 hours showed that the salt had penetrated about halfway down the pulp.

To tube No. 3 $\frac{1}{8}$ grain sublimate paste was added; at the end of 10 hours this had penetrated nearly to the apex. A week later I found the agar in the test tube was infected from the outside of the small tube. On removing the pulp from the tube and placing it on a plate of agar I found no change in the cotton wool, and that the sublimate had gone quite to the end of the pulp. Two days later there was a white areola, corresponding in size and shape to the pulp, all round it, due to the diffusion of the sublimate in the agar. A month later this pulp was perfectly stiff and unchanged, surrounded by an antiseptic zone, which completely prevented colonies from the other pulps on the same plate reaching it.

To tube No. 4 I added $\frac{1}{16}$ grain of the paste; this at the end of 10 hours had penetrated three-quarters of the pulp, and at the end of a month, on the plate of agar, showed some colonies round the apex.

No. 5 tube was given $\frac{1}{4}$ grain of paste, and at the end of 10 hours it was greyish-white nearly to the apex.

The conclusions which I think may be fairly deduced from these experiments are:—

1st. That in order to obtain a satisfactory result at all, one must apply enough of the drug, for in tube No. 4, where $\frac{1}{16}$ of a grain was used, there was evidently not enough sublimate for the size of the pulp.

2nd. That for equal doses the paste penetrates more rapidly than the powder.

3rd. Taking into account the difference in size between a calves' pulp and a human pulp, the dose to apply to the latter need not exceed $\frac{1}{8}$ of a grain—that is, a portion of paste about the size of the head of a fairly large pin would be amply sufficient.

The amount of mischief which an untreated dead pulp is capable of generating will at once be seen on glancing at the story of tube No. 1.

In practice I now use the paste, and instead of applying it with a steel instrument I use a platina needle, in order to avoid a possible source of discoloration. I do not now cover the paste with a little pledget of wool as I consider it quite unnecessary. Professor Miller has recently suggested for the purpose, for use with his tabloids, a gold cylinder; to my mind gutta-percha would be better, as, of course, the mercury enters rapidly into combination with the gold, and, therefore, less is left for penetrating the pulp.

My assistant, Mr. Anderson, thinks—and I quite agree with him from a study of my own records—that, in order to obtain the best results, it is well, if possible, to remove the coronal pulp, and to apply the perchloride directly to what pulp remains in the roots.

Professor Miller, in a communication to the World's Columbian Dental Congress, held last August in Chicago, gave the results of his researches in this direction up to that date. He recommends the use of small tabloids composed of sublimate and thymol, of each 0·0075 gramme; he adds that "the thymol is designed to prevent the sublimate being so rapidly absorbed, besides giving a greater permanency to the application by reducing its solubility. Very seldom, so far, has pain followed the use of these tablets, while experiments out of the mouth show that they still possess sufficient penetrating power."

Professor Miller kindly sent me some of these tabloids, and my experience of them up to the present has been very favourable, besides their being very convenient to use.

In conclusion, I do not wish to be understood as advocating this method of treatment in other than exceptional cases, such as I have already defined; in these it is certainly deserving of trial, and, as I have endeavoured to show by the records I have brought forward, gives us a fair chance of preserving teeth for a further term of usefulness, which otherwise would be a possible source of future trouble to their owners, or be radically cured by the forceps.

Pulp treated with HgCl₂.

Case No.	Age	Sex	Date of operation	When last seen	Tooth	Previous Treatment	Remarks		Colour	No. of months from operation to last visit
1	25	F.	8 Jan., '91	24 Dec., '91	L. L. M. ₃	As ₂ O ₃	Has had pain in cold winds, when all teeth pained. No gum-boil or root trouble.	Dark grey	24	
2	40	F.	8 Feb., '91	26 Feb., '94	L. L. M. ₁	Do.	Quite comfortable. No root trouble.	Dark	86	
a 8	21	M.	2 Feb., '91	80 Mar., '92	None	None	do.	Grey	18	
4	88	M.	7 Feb., '91	17 Feb., '92	R. L. B. ₃	As ₂ O ₃	do.	Dark	12	
6	45	M.	31 Jan., '91	17 Mar., '92	L. L. M. ₁	Do.	do.	Not dark	15	
a 7	18	F.	11 Feb., '91	19 Mar., '92	R. U. M. ₁	Do.	do.	No change	18	
8	80	F.	12 Feb., '91	Do.	R. L. B. ₃	Do.	do.	Dark	18	
10	25	F.	26 Feb., '91	24 Nov., '91	L. L. B. ₁	Do.	do.	Do.	9	
a 11	40	F.	15 April, '91	19 Mar., '92	L. L. B. ₃	Do.	do.	Do.	11	
a 12	40	F.	Do.	Do.	R. L. B. ₃	Do.	do.	Do.	11	
a 13	18	M.	5 May, '91	Do.	R. L. M. ₁	Do.	do.	Do.	11	
a 14	50	M.	6 May, '91	2 Mar., '94	L. L. M. ₃	Do.	Quite comfortable. Says it is sometimes a little tender; but I was unable to detect any evidence of root trouble.	—	10	
a 16	18	F.	18 May, '91	19 Mar., '92	L. L. M. ₁	Do.	Slight periodontitis occasionally.	Dark	84	
17	80	M.	30 May, '91	1 Mar., '94	R. U. B. ₁	Do.	do.	Do.	10	
18	26	M.	10 June, '91	2 Mar., '94	L. U. B. ₃	Do.	Quite comfortable. No root trouble.	Dark at neck	84	
19	15	F.	26 July, '91	21 Mar., '92	L. L. B. ₁	Do.	slight tenderness over root. No gum-boil.	Dark Grey	8	
a 20	14	M.	27 July, '91	9 April, '92	L. L. M. ₁	Do.	Quite comfortable. No root trouble.	—	9	
a 21	80	F.	28 July, '91	19 Mar., '92	L. U. B. ₁	Do.	slight pain immediately after filling; otherwise all right.	Dark	8	
22	40	F.	30 July, '91	17 Mar., '92	R. L. M. ₁	Do.	Quite comfortable. No root trouble.	Do.	8	
23	26	F.	5 Aug., '91	18 Mar., '92	R. U. M. ₁	Do.	do.	Ash grey	7	
24	80	M.	Oct., '91	24 Mar., '92	L. L. M. ₁	Do.	Complete failure	—	5	

* These patients answered by letter.

* This patient has had an abscess in the right lower jaw at the root of an adjoining tooth; the pain may have been caused by this.

* There was an attack of periodontitis in this tooth prior to my treatment.

Experiments with Calves' Pulps.

No.	Treatment.	Ten hours after.	Twenty-four hours after.
1	Infected ; but no sub-limate	No change in colour ; red and vascular	Unchanged
2	Infected ; $\frac{1}{2}$ gr. sublimate powder	Greyish white ; about half way down	Same
3	Infected ; $\frac{1}{2}$ gr. sublimate paste	Greyish white ; nearly to apex	White down to apex
4	Infected ; $\frac{1}{2}$ gr. sublimate paste	Greyish white ; $\frac{1}{4}$ way down	Same
5	Infected ; $\frac{1}{2}$ gr. sublimate paste	Greyish white ; nearly to apex	Same

Above tubes were left for one week in an incubator at 85°C., at the end of that period three of them were removed to a plate of agar and replaced in incubator.

No.	Condition when removed.	Two days after.	A month after.
1	Agar liquefied ; cotton wool nearly black ; pulp gangrenous and foul-smelling	Colonies of various sorts all round	Completely gone to the bad ; colonies spreading half way across plate
3	Agar infected from the tube ; cotton wool unchanged ; sublimate had penetrated to apex	White areola, corresponding in shape and size of pulps all round, due to HgCl ₂	Stiff ; unchanged ; no colonies ; line of demarcation due to sublimate
4	Ditto ; sublimate did not get as far as apex	No development of colonies	Soft - looking ; apex black ; well-marked colonies round apex

ART. XVI.—Ruptured Tubal Pregnancy, with Intra-peritoneal Hæmorrhage, successfully treated by Abdominal Section.* By ALFRED J. SMITH, Ex-Assistant-Master, Rotunda Hospital; Examiner in Midwifery, Royal University; Professor of Midwifery, R.U.I.

THE number of successful operations for the radical cure of ruptured tubal pregnancy, where the hæmorrhage was peritoneal, have been extremely few in Ireland; in fact, I can only find a

* Read before the Obstetrical Section of the Royal Academy of Medicine in Ireland, on Friday, April 13, 1894.

record of two—one by Dr. Smyly, Master of the Rotunda, and the other by Professor Byers, of Belfast. Their limited number, therefore, must be my apology for placing before the consideration of this Section of the Academy a detailed report of a successful case treated by me in my gynaecological wards in St. Vincent's Hospital. On the 22nd of March last I was asked to see a case in one of the suburbs of Dublin. On arrival the patient told me that her age was thirty-six, that she had been married fourteen years, had two children born at full term alive and healthy. The youngest child was eight years old. There was an adherent placenta after the birth of the last child; its removal was followed by a septic fever which invalidated the patient for three months. Then followed six miscarriages at about the third month, with intervals between the abortions of from nine to fifteen months, the last abortion being in October, 1892. In the June following—*i.e.*, in the June of last year—her uterus was curetted; since then her changes were quite regular as to time, but lasted about seven days; they were accompanied by pains of a bearing-down character. Her changes in last December and January were quite as usual, but the changes which came on at the beginning of February began without any unusual pain and continued without intermission up to March 22nd. She put off consulting a doctor from day to day, and sought my advice only because a dose of salts taken in the early morning had not acted, and that for the first hour or so before my arrival she complained of severe gripping pains in the abdomen, and a feeling as if there was some lump in the back passage which caused a constant desire to stool, but without any result. The patient looked more unwell than her symptoms accounted for, so I ordered her at once into St. Anne's ward at St. Vincent's Hospital.

On visiting the hospital next morning, Good Friday, I was struck at once by the great pallor of the patient; the small quantity of blood discharged per vaginam could not account for the patient's serious condition. Pulse feeble, 120. Temp. 99° F., lips blanched and pupils dilated. External palpation revealed a uniform tenderness over the lower part of the abdomen. A point of maximum intensity could not be ascertained; no dulness on percussion.

Examination per vaginam by the bi-manual method was decidedly unsatisfactory, as it had to be made in the ordinary ward bed, and the extreme weakness of the patient prevented a thorough examination. The points noted were: the uterus felt apparently

normal as to position, but slightly anteposed; the fundus enlarged and soft; the posterior *cul-de-sac* felt boggy and bulged into the vagina. I could not form any opinion as to the condition of either broad ligament. But the conclusion was forced on my mind that I was dealing with a case of intra-peritoneal haemorrhage, most probably caused by the rupture of a tubal pregnancy and not a collapse from faecal impaction, and I determined to operate at once. Mr. M'Ardle kindly saw the case with me and urged the advisability of immediate operation.

The patient refused to be operated on without her husband's permission, and three valuable hours were lost before he could be communicated with and his permission obtained. To such a low condition was the patient run that I had to perform the abdominal section in her own bed in the large ward. Mr. M'Ardle gave me his valuable assistance, and Dr. Anderson, house surgeon, administered ether.

An abdominal incision to admit three fingers was made in the usual situation. The anaemic appearance of the wound was remarkable. On opening the peritoneum blood welled up in great quantity and established the diagnosis. The pelvis was full of tolerably firm blood clots, which had become more or less adherent to the pelvic organs, and caused some difficulty in making out from which broad ligament the haemorrhage was coming. On satisfying myself that it was from the left side, I passed a stout silk ligature through the broad ligament close to the uterus with Tait's needle and tied firmly. Having thus controlled the haemorrhage I proceeded to remove the blood clots, removing large quantities by aid of the fingers and a sponge. This method I found too slow, so I employed the douche, using a saline solution of ordinary refined household salt in the proportion of one tablespoonful to one gallon, and at a temperature of 99° F. The stream of water was directed against the bottom of Douglas' pouch, the height of the douche can being 2½ feet, and then, with the aid of my fingers, the clots were floated out quickly. I now changed the patient to a Trendelenburg's table, so as to see better what I was doing. It was noted the inverted position was of much benefit to the patient; her pulse, which was almost imperceptible in the wrist, returned. Then I tied the broad ligament by the usual double ligature and removed the ruptured tube and ovary [specimen here shown]. The right Fallopian tube and ovary were examined and found normal. The pelvic cavity was again douched out with the warm

saline solution; the excess of fluid was not aspirated, but was left in to be absorbed by the peritoneum. A Keith's glass drainage-tube was inserted, and the abdominal wound was closed by interrupted silk sutures.

On lowering the Trendelenburg's table and transferring the patient to the bed a marked effect on the circulation was observed; the pulse apparently dying out, its volume returned as soon as the patient had an enema of a pint of the saline solution, to which 30 drops of laudanum were added; it was necessary again to slightly invert the patient by an arrangement of pillows placed under her hips and raising the end of the bed.

The after-treatment differed from ordinary abdominal sections inasmuch as the patient was allowed within the first twenty-four hours to drink as much milk, well diluted with hot water, as she wished; also weak hot tea. On the second day she had an egg-flip, beef-tea, &c., without any trouble following. Stimulants were administered per rectum. Bowels moved without medicine on the third day. The drainage-tube was able to be removed on the fourth day after the operation.

Her recovery was not perfectly afebrile, as an attack of pneumonia, confined to the base of the left lung, supervened on the second day, the temperature rising to 102° F., pulse 118, the sputum being characteristically rust-coloured. In treating this complication I had the benefit of my colleague's, Dr. Cox's, opinion, who states that there is also distinct evidence of a phthisical cavity at the apex of the left lung. Notwithstanding these serious complications, the patient is doing extremely well.

I am glad to be able to state that she was able to leave her bed this morning, just three weeks since the operation.

Pathological examination of specimen by Dr. Glasgow Patterson, Pathologist to the Hospital.—The specimen consisted of the left ovary, tubo-ovarian ligament, the outer two-thirds of the Fallopian tube, and the portion of the broad ligament which had been embraced in the ligature. The ovary was enlarged to about twice its normal size, and section revealed—what had been evident on palpation—the presence of a cyst about the size of a cherry, which was filled with a milkish opaque fluid, and had adherent to its walls a quantity of semi-opaque gelatinous material which, examined microscopically, was found to consist of a homogeneous, granular, and fatty *débris*, most probably epithelial in character. The cyst was definitely enclosed in a fibrous capsule. The inner portion of the tube was

considerably enlarged in size and presented signs of inflammation; while the outer portion of the tube showed that the fimbriæ had to a large extent become obliterated by adhesions, and that these had subsequently to a large extent been broken down by a rupture which extended for about an inch along the tube internal to the ostium. This ruptured cavity presented very ragged walls, the normal epithelium being totally destroyed and the surface covered with irregular shreds and tags of inflammatory material or coagulated fibrin. There was no trace of an ovum in the tube, nor any sign of commencing formation of membranes, though on this point I cannot speak with certainty, as the specimen had undergone considerable maceration in weak spirit, and the time at my disposal was too short to allow of a microscopic examination.

All the blood-clots removed from the pelvic cavity were preserved and carefully searched without finding any foetus. From the pathological report just presented to you I consider that what doubtless took place soon after the adhesion of the ovum near the ampulla of the tube is that the fimbriæ closed over it and became adherent to one another, as they may be constantly seen to have done in cases of non-adherent hydrosalpinx, and the subsequent disseverance of the fimbriæ constituted the rupture. The absence by macroscopic examination of any evidence of the foetus is a matter of frequent occurrence in Fallopian pregnancies occurring in the outer third of the tube on account of the early period of their rupture about the sixth week. A very interesting query—Is this case an example of complete “tubal abortion” in ectopic gestation?

Remarks.—Some points of special interest occur to me as worthy of note in reviewing this case—namely, the complete absence of any history of pregnancy, or the shedding of any decidua from the uterus. These two facts, coupled with the constant ineffectual effort to stool, might easily lead to a serious error in diagnosis.

The case also illustrates the value of—

1st. Trendelenburg's table.

2nd. The use of saline solutions for peritoneal douche or enema in cases of severe haemorrhage.

And, lastly, that our after-treatment in abdominal sections can be guided by rational methods, and that it is not necessary to follow slavishly the old starvation process.

ART. XVII.—*Note on Treatment of Acne Rosacea.* By HENRY S. PURDON, M.D., Physician for the Skin, Belfast.

THE treatment of acne rosacea is generally unsatisfactory. No doubt, the late Sir Erasmus Wilson was correct when he expressed the opinion that the disease was closely allied to eczema, due to "nutritive debility." And another fact in its obstinate character must not be lost sight of—viz., its "hereditary" nature. I have met with several families in which a tendency to the disease exists, or, as it is called, "atavism," the grand-children showing disease best. In acne rosacea we have frequently dyspepsia in some form or other, whilst locally a determination of blood to the capillary vessels of the affected part, showing itself by dilated minute blood-vessels, that should be scarified in a longitudinal manner, after which, when bleeding has stopped, the part may be painted over with Richardson's "styptic colloid." The sebaceous follicles are inflamed, but do not mature readily. As regards treatment, the dietary and any gastric derangement having been attended to, the following local plan gives good results:—Bathe affected parts with spirits of horseradish, say in the morning, whilst at bed-time rub pretty firmly into disease a pomade of sulphur with a small quantity of carbolic acid. In place of the latter, sometimes good results are obtained by substituting 10 grains of the green iodide of mercury to the ounce. All comedones to be squeezed out with an "extractor." As a "reducing" agent, ichthylol is often better than the sulphur. It may be of interest if I give Dr. Unna's (Hamburg) own words, who, in a letter to me, dated July 26, 1893, says—"I have never recommended ichthylol in acne, but only in rosacea, which is, after my researches, never a sequence of real acne, but of seborrhoeic eczema, the tubercles of which are none of acne, but of a special folliculitis. This common mistake explains, perhaps, the usual use by other dermatologists of ichthylol in acne."

In rosacea, when much hypertrophy occurs giving rise to lipoma, excision is the only remedy, the enlargement of the affected part being now due to a new growth of adipose tissue from excess of nutrition causing the rapid production of fatty cells and lobules around and between the connective tissues and blood vessels. These lipomas, occurring on the nose and associated with rosacea, are, as a rule, always pendulous.

ART. XVIII.—*Andrew Vesalius.* By GEORGE MATHESON CULLEN,
M.D., M.Ch. Univ. Edin.

(Continued from page 307.)

PART II.

*Corporis humani qui membra minuta secaret
Vesalio nullus doctior extiterat
Hic medicis auxit, pictoribus auxit et artem
Dum subit internas quae latuere vias.*

—(B. A. Montanus).

EVERY man who having turned to a particular science has distinguished himself therein, is apt to be so associated with this particular branch of knowledge that it is with surprise we learn that his work was not restricted within its limits. And so it is with Vesalius. He has been so intimately connected with anatomy, that his work and his influence upon medicine, physiology, pathology, and surgery are often overlooked, and for the same reason his position and importance in the history of art have been to a great extent unnoticed.

The condition of anatomy at the time of Vesalius must be thoroughly understood before we can rightly estimate the changes that he brought about. Before the Christian era, probably the only men who had dissected human bodies were the anatomists of the school of Alexandria, and of their knowledge we can only judge by the excerpts which Galen has preserved. The latter does not seem to have had any accurate acquaintance with human anatomy, but his books were eagerly read by the Arabs, whose religion prevented them from verifying his statements by actual dissection. When Christian Europe emerged from the flood of Barbarism, it also clung to Galen's works, for they were the only ones that existed upon anatomy. The dissection of bodies was a reform that was not definitely brought about for centuries. In 1213 Frederick II., King of Sicily, promulgated a law whereby no one was allowed to practice surgery without passing an examination in anatomy, and Martianus, the principal doctor on the Island, obtained leave to give a course of demonstrations on a human body once every five years.^a Whether such a course was ever held or not it is impossible to say; but the first public dissection of which there is a record was performed by Luigi Mondino of Luzzi, at Bologna in 1315. According to Guy de Cauliac^b (flor. 14th cent.), Mondino described the body in four demonstrations—

^a Burggraave. *Historie de l'Anatomie.* 8vo. Gand, 1840. P. 47.

^b Guy de Cauliac. *Chirurgia (Anat., cap. I., doct. 1.).*

the first upon the abdominal viscera, the second upon the heart and vessels, the third on the brain and nerves, and the last upon the extremities. Little in the way of exact knowledge could be expected from such an examination. Books of anatomy, however, began to be published—reproductions of Galen, with various additions derived from the Arabs, or from the author's own experience. Berengarius di Carpi opened over one hundred bodies,^a and Benivieni some twenty;^b but there was almost no progress, and when Vesalius began anatomy it was practically as Galen left it, or rather worse, because only a few of Galen's works had survived, and these were so obscure in many places that it was almost impossible to rightly understand them. Thus we find that Sylvius in his teaching skipped over whole chapters,^c which he declared would uselessly vex the student. The foundation then upon which Vesalius built was the anatomy of Galen, and it was only in 1539, when he began to dissect more systematically at Padua, that he was brought to feel that Galen was wrong.

Galen had very imperfectly described myology and osteology, and though his description of the brain (of ox) is fairly accurate, he enumerates only seven pairs of cranial nerves. There were, according to him, two venous trunks, the *vena cava* and the *vena portæ*, which are joined together by branches below the liver; the *vena cava* mounts to the heart, and sends through the right auricle a branch (pulmonary artery) to the lungs. The liver is the centre of the venous system, and from it veins proceed; the heart is composed of two ventricles which communicate by pores through their walls; the arteries bring air from the lungs to the left ventricle, and from thence it is distributed throughout the body. He ascribed life to three forces—one in the liver, acting by the veins and ruling the natural functions; the second, in the heart and arteries, presides over the vital functions; and the third, passes through the brain and nerves to control the animal functions.^d

Such in brief epitome was Galen's idea of anatomy. What did Vesalius do? He gave a most excellent account of the bones of the body, and in particular may be mentioned his description of the sphenoid bone, the sternum, the sacrum, the coccyx, and the vertebræ. In myology, too, he made a great advance, although

^a Berengarii di Carpi, *Isagoges perlucidæ, &c.* 8vo. 1521.

^b Roth's *Andreas Vesalius, Bruxellensis.* 8vo. Berlin, 1892. P. 195.

^c Vesalius, in *Epist. de Chynæ Radice, in Opera Omnia.* Vol. II., p. 666.

^d Burgraave. *Hist. de l'Anatomie.* 8vo. Gand, 1840. P. 35, et seq.

he did not enjoy the advantage of a nomenclature. He gave the first clear account of the anterior and posterior mediastina, and of the thyroid glands. He showed how Galen erred in saying that the brain was a double organ like the eyes or hands, and he described well the commissures between the cerebral hemispheres. So far as I know there is only one structure associated with the name of Vesalius—the foramen of Vesalius, which is sometimes found between the foramen spinosum and the foramen ovale, on the cranial floor. His name, however, is so intimately connected with the whole structure of the body that he could well afford to lose even this special mention. It may astonish some to hear that he knew many things ascribed to the discovery of later anatomists; for instance, he has described the emergent veins of Santorini,^a the Pacchionian bodies,^b the foramen of Munro,^c the valve of Vieussens,^d the Pons Varolii,^e the antrum of Highmore,^f the Fallopian tubes,^g &c. He gave the first accurate account of the foramen rotundum^h in the tympanic cavity, of the corpora cavernosa penis,ⁱ of the stomach and pylorus,^j of the liver,^k of the peritoneum,^l of the diaphragm,^m of the ventricles of the brain,ⁿ and of the course of the venæ azygos,^o seminal vessels and vasa deferentia.^p

But with all his industry Vesalius left something to be gleaned by his successors. He did not recognise the external pterygoid muscle, the levator palpebræ superioris, the pyramidales nor the occipital part of the occipito-frontalis, and he did not separate the teres minor from the infra-spinatus.^q He did not describe the lacrymal gland, the punctum lacrymale, the pulley of the superior oblique muscle of the eye, Wirsung's duct, Wharton's duct, the stapes, the internal ear, the suprarenal capsules, the clitoris, the hymen,^r the inguinal canal in women, &c. His great argument against Galen was that the latter dissected animals and applied the description to man; and it is curious to find Vesalius himself committing this fault, as in the case of the muscle surrounding

^a Opera Omnia cura Boerhaave. P. 350.

^j Ibid. Lib. V., cap. iii.

^b Ibid. P. 587.

^k Ibid. Lib. V., cap. vii.

^c Ibid. P. 545.

^l Ibid. Lib. V., cap. ii.

^d Ibid. P. 546.

^m Ibid. P. 240.

^e Ibid. P. 540.

ⁿ Ibid. Lib. VII., cap. vi.

^f Ibid. Bk. I., cap. ix.

^o Ibid. P. 823.

^g Ibid. P. 461.

^p Ibid. P. 450.

^h Ibid. Bk. I., cap. viii.

^q Ibid. P. 218.

ⁱ Ibid. Lib. V., cap. xiv.

^r The hymen had been long well known, but in Exam. Oba. Anat. Fallopii Vesalius declares he is not satisfied of its existence.

the optic nerve—a structure which exists indeed in oxen, but he mentions it as occurring in man.^a

In his enumeration of the cranial nerves he follows Galen, and consequently leaves much to be desired. Passing over the olfactory nerves he makes the optic the first pair,^b and in opposition to Galen he declares them to be solid. The second^c is the motor oculi, the trochlearis being indicated by a branch of his third^d pair—the trigeminal. The abducens he missed, and he makes up the fourth^e by various palatine nerves. The fifth^f is composed of two branches—the auditory and facial—but he does not mention the Gasserian ganglion. The sixth^g pair he forms from the spinal accessory and vagus, and he describes the sympathetic as part of this pair, and mentions that it sends branches even as low as the bladder. He knew also of the recurrent laryngeal branch of the vagus and the communicating branch to the hypoglossal; the latter^h forms his seventh and last pair. These are errors of classification for the most part, but we must not overlook certain erroneous descriptions he has given. Thus he speaks of the sagittal suture being sometimes prolonged into the foramen magnum,ⁱ and he divides each lung into two lobes.^j His ideas with regard to the structure of the teeth and of the kidneys are very defective, though Eustachius had already given an excellent account of both. He describes the stylo-hyoid ligaments as part of the hyoid bone,^k and makes the digastric muscle arise from the styloid process.^l His account of the arch of the aorta is very confusing, and he says it gains the posterior wall of the thorax at the fifth dorsal vertebra.^m He traces both arteries and veins into the cerebral sinuses,ⁿ and to this ascribes the pulsation of the brain. He denies that any vessels enter the cerebral substance,^o which he believes is nourished by inbibition from the vessels of the pia mater. He also refuses to believe that some nerves are sensory and others motor,^p or that a lesion of one side of brain is followed by symptoms affecting the other side of the body.^q He knew nothing about the lymphatics.

^a Ibid. P. 197.

^b De Corp. Hum. Fabrica. Lib. IV., cap. iv.

^c Op. Cit. Lib. IV., cap. v.

^d Op. Cit. Lib. IV., cap. vi.

^e Op. Cit. Lib. IV., cap. vii.

^f Op. Cit. Lib. IV., cap. viii.

^g Op. Cit. Lib. IV., cap. ix.

^h Op. Cit. Lib. IV., cap. x.

ⁱ Opera Omnia. P. 22.

^j Op. Omnia. P. 647.

^k Ibid. Lib. I., cap. xiii.

^l Ibid. P. 204.

^m Ibid. P. 341.

ⁿ Ibid. Lib. III., cap. xiv.

^o Ibid. P. 350.

^p Ibid. P. 672.

^q Ibid. Lib. IV., cap. iv.

Coming to the question of pregnancy and development, Vesalius has much to say that is interesting. He points out that the sub-pubic angle is greater in women than in men, but he discredits the idea that the pubic bones are separated during parturition—a problem eagerly discussed at that time. Vesalius also did much to clear up the significance of the term “Cotyledon,” and showed that these separate masses were not to be found in the pregnant uterus of woman. The uterine interior, uniformly smooth in the normal condition, becomes, according to him, covered with a rough membrane (decidua) in the early months of pregnancy. He describes three foetal membranes; the external or chorion becomes attached particularly to one part of the uterus, and there forms the placenta; the middle or allantois is a sac for the foetal urine that flows along the urachus from the bladder; the internal or amnion completely covers the embryo, and is filled with a fluid that transpires through the skin of the foetus. The bones are developed either from membrane or cartilage, each bone being formed from several ossific centres, and he teaches the direct communication of the foetal with the maternal blood. The uterus he declares to have a single cavity, and not two as Galen said, nor seven as popular belief inclined.

This in a very general way may give an idea of the contents of this wonderful work on anatomy. Its merits are great and striking, while its faults are mainly to be attributed to the training Vesalius had received, and to the influence which Galen still wielded over him.^a In his letters to Roelants and to Fallopius our author again returned to anatomical questions, but he had been removed from the possibility of dissecting, and consequently he for the most part repeats what he had already said in his Anatomy. In his epistle to Roelants^b he sums up in a convincing manner his argument that Galen did not dissect men, and was not to be trusted as an authority on human anatomy. Galen, he says, gave man a frontal suture, a premaxillary bone, an inferior maxilla made up of two pieces, a sacrum and coccyx composed respectively of three

^a The Epitome is a very short summary (a few folio pages) of the larger work, and need not be considered here. There is a more extended analysis of De Hum. Corp. Fabrica in Lauth's Histoire de l'Anatomie, in Burgraaves' Études sur A. Vesale, and in his Histoire de l'Anatomie.

^b And. Vesalii Bruxell. Medici Cesarei Epistola, Rationem . . . propinandi radicis chymæ decocti . . . pertractans: and præter alia quædam, epistolas ejusdam ad S. Sylviam sententiam recensens, &c. Basileæ ex officina Oporisi. 4to. 1546. Pp. 284.

bones, a sternum made up of seven, a large cæcum, a liver of six lobes and a lung of five, a uterus with two cavities, and he described other structures which though present in animals are not to be found in man. Some, indeed, argued that Galen's descriptions referred to children^a not to adults, but, continues Vesalius, if Galen gives us the lower jaw and the sternum of a child, why does he not also describe the occiput, or the sacrum or vertebræ of children? Moreover, says our author, Galen has missed out many structures present in the body, and given erroneous and misleading accounts of others. Galen did not know the middle ear, the medullary canal in the phalanges, that the ribs had two articulations with the vertebræ, that there were inter-articular cartilages in the sterno-clavicular, maxillary, and acromio-clavicular joints; he was ignorant of the thyroid glands,^b and declared that the greater part of the stomach lay in the right side of the abdomen. Among his other errors Vesalius instances the vein from the spleen to the stomach, the opening between the ventricles of the heart, and his opinion that the aorta and gullet pierce the midriff by a single opening, that veins from the vena cava go to the stomach, and that the vena cava itself arises from the liver. "Assuredly," concludes Vesalius, "if we examine the body of man by careful dissection, and are not led away by vain imaginings or dreams, we must see that these things are wrong, and I, for my part, place greater trust in my own eyes than in what Galen teaches." This, indeed, is the key to the whole situation as between Vesalius and the adherents of Galen. In this letter our anatomist also gives many interesting details about his life, and he emphasises the fact that he had no teacher in anatomy, that he learned it by teaching and writing, and that Sylvius, Guinterius, and his other masters taught him only medicine.

Boerhaave and Albinus include in the *Opera Omnia Vesalii* the pamphlet written by Cuneus.^c Cardan,^d too, seems to think that he was the author under this *nom de plume*, but other authorities contest this opinion, and internal evidence goes to prove that Vesalius did not write it. In 1561 Fallopius published

^a Afterwards Sylvius put forward the argument that Galen had described the heroic race of his time, and that since then changes had occurred in human anatomy coincident with the gradual appearance "of the present race of pygmies."

^b Undoubtedly Galen has described some of these structures; he knew of the existence of the middle ear, and mentions the thyroid gland in his treatise, *De Voce*.

^c G. Cunei. *Apologia F. Putei pro Galeno in anatome Examen.* Venetia. 1564.

^d Jerome Cardan. *Opera Omnia.* 10 vols. Lugduni. 1663. Tom. I., p. 46.

his "Anatomical Observations"—a masterly work, displaying the most careful and accurate dissection—and therein, while extolling the "divine Vesalius," he points out several mistakes which the latter had made, and corrects some of his descriptions. Vesalius wrote in reply "An Examination of the Anatomical Observations of Fallopius," and in this he for the most part repeats what he had already said. Kingsley has described it as a "wrong-headed and angry reply;" but this is an exaggeration, though it cannot be denied that Vesalius erred in defending some of his former descriptions, and in casting doubt upon the genuineness of certain things dissected by Fallopius—as, for example, the clitoris and the inguinal canal in women, &c.

Such is a rapid *résumé* of the writings of Vesalius upon anatomy, and it will show that though he was a careful dissector, and on the whole described the body very well, yet, after all, his chief claim to greatness lies in the war he waged against Galen. Anatomical teaching, too, he quite revolutionised. In his youth the books of Galen were read and commented upon with scarcely a demonstration of the parts on the human body, but when he became a teacher he changed all this, and the student learned his anatomy from no other book than the truthful page of man's body, laid open by the scalpel. It is no wonder that this new method bore fruit in a distinguished list of pupils—Fallopius, the most illustrious of dissectors; Columbus, whose descriptions are of the clearest, and who discovered the *musculi pyramidales*; Aranzi, whose luminous researches upon the *fœtus* are well known; Vidus Vidius, who in his old age embraced the new doctrines; and many others.

But Vesalius was no one-sided man; he had studied medicine as a whole, and his conception of what the science should be was far above its condition at his time. Medical knowledge and practice were then at their lowest ebb; the writings of the ancients were to some extent preserved, but the difficulty of proper translation prevented even these from being very useful. A few of the extraordinary recipes of the old times were still known and in vogue—such as theriaca and the Democratic confection—but the acquaintance with drugs was exceedingly limited. So great was the ignorance with regard to simples that William Turner, who wrote an English Herbal in the years 1551 and 1552, informs us that he could not find a physician in Cambridge who could tell him the proper name in Latin, Greek, or English of any plant he

brought forward. Naturally the people had come to scoff at medical men, and failed to be impressed with their learned and long-winded disputations about nothing. But with want of knowledge there was very little compensatory humility, for diseases were diagnosticated in the most extraordinary fashions. Robert Wittie^a says of the doctors of the seventeenth century that there were only too many who did but “peepe into urines, handle pulses, and prescribe purges.” And in the time of Vesalius things were in a still worse state. Astrology was widely practised as an accessory of medicine. The mere gazing at the urine was made to give marvellous information. By means of it the doctor could tell what was the matter with a patient he had never seen, whether he suffered from epilepsy, quartan fever, or any other disease. If the urine were from a woman he was able to say whether she were pregnant or not, and if with child to prognosticate the sex of the infant. So prevalent did this fraud become in England that it had to be suppressed by a decree of the Royal College of Physicians.^b

In the midst of this quackery and deception the clear common sense of Vesalius and his straightforward character directed him in the true way, and he shows this well in his “Consilia.” It was a common practice at the time to write a report of a case and send it to a celebrated physician for his advice, which took the form of a letter or consilium. Some six consilia of Vesalius still exist.^c In one^d of these, the case is that of a man blind of one eye and with diminished vision in the other, and he points out how difficult it is for him to speak definitely, for the cause of the disease, as well as the method of cure, depends on the symptoms, and “I do

^a Primrose's Popular Errors. Translated into English by R. Wittie. 12vo. Lond. 1651.

^b Robert Wittie gives the text—“It is a ridiculous and foolish thing by looking into Urines alone to goe about after the manner of Witches and Conjurors, to divine anything as certaine and solid, either of the kind and nature of diseases, or of the state and condition of the sick : Wee admonish therefore all Physicians that they behave themselves for the future in this particular much more warily than had been wont heretofore to be practised by many. And for this cause we forbid all that practise Physic, that they prescribe anything in Physic for those idiots and silly women that carry about the urinals of the sick, except they either first know well, or see the sick party himself, or at least be plainly, fully, and sufficiently informed by them that ask their counsell, of the whole disease wherewith the sick doth labour, and of the several circumstances thereof : For by this means we shall both better maintain the dignity of the Physician and more fitly and skilfully bethink ourselves of those remedies, which shall be most profitable for one that is in danger.”

^c These have been collected by Roth, and may be seen in his book on Vesalius.

^d Consilium Montani.

not know," he continues, "what amount of vision the patient has, whether he sees best in bright daylight or at dusk, and whether the pupils react to light or no." As an example of his treatment we may instance the same case. He advises complete rest for the eyes, with bleeding occasionally, and purges from time to time. If the case proves obstinate he recommends the insertion of a seton in the neck, and finally, if the dim eye gets worse he urges the extirpation of the blind one. And so in his other consilia as well, he shows how extensive was his acquaintance with the ancients, and how far he was in advance of the methods of the day.

I have already mentioned the commentary he made upon the ninth book of Rhazes, the book which specially deals with the treatment of disease, but he also commented upon the whole medicine (the Continent, as it is called) of Rhazes, and wrote a treatise upon drugs. This last was a subject in which he took particular interest, and he seems to have used freely the China root (*i.e.*, sarsaparilla), guaiac, and other drugs which had been recently imported into Europe. Some of his prescriptions are complicated enough to our present ideas, but they are simple when compared with those of his contemporaries, and are free from the extraordinary and fanciful ingredients which it had become fashionable to employ. Indeed, on reading the clear account he has given of the preparation of sarsaparilla, &c., one cannot help regretting the loss of his work on drugs. So far as can be judged he does not seem to have been influenced by the chemical school which had lately risen, and been brought particularly into prominence by Theophrastus Bombastes von Hohenheim (Paracelsus) and his pupils.

Vesalius, too, pointed out distinctly and emphatically that the cure of the disease was to be sought, not in urine-smelling or in star-gazing, but by finding out the part of the body at fault, and ascertaining what the fault was. In his Anatomy he mentions^a his determination to write a treatise on the pathological appearances he had noticed, and these must have been numerous since he gave his students special directions^b to get the bodies of those who died in hospital, and whose symptoms they had observed during life. It is the more to be regretted that this resolution was never carried into effect, since the cases he incidentally records are of the most interesting nature. He is almost the first to record the presence

^a De Hum. Corp. Fabr. Lib. I., Cap. V. (Op. Omnia, p. 17).

^b Epistola de Chynæ usu (Op. Omnia, p. 680).

of stones in the gall-bladder.^a In an interesting case of hydrocephalus he points out that the fluid is contained within the brain itself, and not between it and the interior of the skull. Here the ventricles of the brain contained nine pounds of water, and yet so little were the brain functions interfered with that neither paralysis nor convulsions were observed. At page 366 (*Op. Omnia*) there is the record of a case where the optic nerves did not form a commissure, and Vesalius had good grounds for contending that there was no real crossing of the optic tracts, when he saw that in two cases the extirpation of the right eye was followed by degeneration in the right optic nerve and tract. He also noticed that the omentum sometimes finds its way into a hernial protrusion.^b Various alterations in the spleen are mentioned—in a case of elephantiasis it was enlarged, and he found it huge and liver-like in a man of "extremely pale and smooth skin."^c There is also a very interesting case of an ovarian cyst which contained some 180 pounds of water. This occurred in a spinster in whom the other ovary contained some nine or ten cysts, varying in size from a goose to an ostrich egg.^d He describes also a chronic abscess of the abdomen which caused perforation of the portal vein and death by haemorrhage.*

In speaking of epilepsy, he ascribes the disease to some obstruction to the cerebral nerves at the points where they arise, and he believes that this obstruction may be due to various causes, among others, to the poison coming from a distant and diseased organ or structure.^e He also gives an instance of aortic aneurysm,^f and declares that the disease is by no means a rare one.

Writing a book on normal anatomy, Vesalius did not consider that abnormalities and monstrosities should be described by him.* On several occasions, however, he breaks through this rule; as, for instance, when he tells us of a man with a double meatus

* *Epistola de Chynæ usu* (*Op. Omnia*, p. 674). Vesalius, though admitting having once seen a case where the bile duct entered the stomach, maintains that Galen was wrong in describing this as the usual course of the duct, which almost always opens into the duodenum.

^b *Opera Omnia. De Hum. Corp. Fabrica.* Lib. V. P. 421.

^c *Opera Omnia. De Hum. Corp. Fabrica.* Lib. V. P. 438.

^d *Opera Omnia.* P. 438. Vesalius describes the fluid as being inside a distended uterus.

^e *Opera Omnia.* P. 438.

^f *Consilium Scholtzii*—in Roth's *Andreas Vesalius Bruxellensis*.

^g *Fallopii Observ. Anatom. Examen.* P. 71.

^h *De Hum. Corp. Fabrica.* Lib. V. *Opera Omnia.* P. 455.

urinarius," and where he describes several abnormalities of the kidney.^b

In the complete edition of his works (*Opera Omnia Vesalii*, 1725), we find included the *Chirurgia Magna*. This has been the subject of much controversy, many denying that it came from his pen and ascribing it to Fallopius or Borgarutius, or some one else. The book was first published in 1568 by Prosper Borgarutius, and it purports to be from a manuscript of Vesalius, and Burggraave. Roth, and other competent authorities have declared for its authenticity. I am inclined to believe that it is mainly from the hand of Borgarutius himself. Vesalius, indeed, may have left some notes on Surgery, but I venture to think that he would not have mentioned the liver as consisting of many lobes, whereas in his Anatomy he points out that this is one of Galen's errors, and that, in fact, the organ is smooth and practically formed of only one lobe. In the Surgery, also, we find the old view put forward that the spleen sends veins to the stomach—a statement which Vesalius elsewhere emphatically denies. Again, it is stated in this work that there are two auditory ossicles, whereas in his letter to Fallopius, our author says that he had long known the existence of the third bone. Finally, there is little in the matter or style of the book which would lead us to consider it the work of Vesalius. The only interesting thing, perhaps, in the Surgery is the advocacy of the ligature of blood-vessels.^c To Paré is usually ascribed the introduction of this method of procedure, but we find in his apology for ligature that he mentions Vesalius as one of those in favour of it. Vesalius himself points out that Avicenna had strongly recommended this procedure to prevent bleeding. Whether Vesalius ever did much practical surgical work, or whether he were merely called in as an expert to give an opinion and decide upon the line of treatment which another would carry out, is a question which cannot be definitely answered. We know for certain, however, that he performed such operations as bleeding, and did some amputations for gangrene of the extremities. In one^d of his "consilia" he brings forward a method of cure he had devised for pleural abscess following a penetrating wound of the chest—it is, in short, drainage—by making a counter-opening at the lowest part of the pleural cavity, and he mentions

^a *De Hum. Corp. Fabrica.* Lib. V. *Opera Omnia.* P. 454.

^b *Ibid.* Lib. V., Cap. X.

^c *Chirurgia Magna.* Op. *Omnia.* P. 971.

^d *Consilium Ingrassiasae.*

four cases where he had ordered it, in three of them with perfect success.

His opinion of the relation of the different parts of the medical profession to one another is thoroughly sound and must have had some influence in bringing about a better state of things. "The practice of medicine," he says, "is miserably torn asunder; some study physic and call themselves physicians, and they look down upon those who practice surgery—the other branch of medicine—and regard and treat them as servants. It is ridiculous to put one branch of the science before the others, since the three means of attacking disease cannot be disjoined. We have, indeed, hygiene and medicine and surgery, but they all combine for the one end—the cure of the patient. How much more quickly will the disease be conquered if one is master of all three divisions? Indeed, all three are required in treating most diseases. It has come about also that the compounding and administering of drugs are left to the apothecary, and thus doctors have lost the necessary knowledge of simples. Wrong and barbarous names are given to medicines, while many compounds used by the ancients are unknown among us."^a Vesalius also strongly urges doctors to make themselves familiar in every branch of their profession, and think it no disgrace to use their hands. He also vigorously advocates the claims of anatomy, showing that it is the very groundwork of medical knowledge, and in a particular manner he insists upon its necessity for the proper understanding of surgery. Indirectly, too, the latter science owes much to Vesalius, for it was from his works that Paré learnt his anatomy.^b Vesalius also practised vivisection, and he points out that this is the only method by which physiology, the science of living things, can be known.

Passing from the domain of medical science to that of general literature and culture, we find that Vesalius was a well-read scholar. His acquaintance with the Latin and Greek languages was extensive and accurate. In Arabic he was familiar, and he had read a Hebrew edition of Avicenna. His works, also, show him to be a man of artistic feelings and tastes, and indeed his services to art were of no mean order. Before his time there existed few illustrations of anatomical subjects. It is true that Michael Angelo, Raphael, and Rosso de Rossi had made some sketches in this direction, but they were rough and unfinished.

^a De Humanis Corporis Fabrica. Dedic. ad Cæsaram.

^b See Maloigne's Oeuvres d'Ambroise Paré. Introd., p. 266.

Two well-known painters, however—Leonardi da Vinci^a and Albert Dürer—had composed designs for anatomical works, but in these cases the subject was approached from the standpoint of the artist rather than that of the anatomist. According to Choulant,^b the first medical work to be illustrated with anatomical woodcuts is the *Fasciculus Medicinæ* of Johannes de Ketham, which appeared in 1491. After that there gradually appeared the illustrated works of Johannes Peylick,^c of Magnus Hundt,^d of Laurence Phryesen,^e of Berengarius di Carpi.^f All these illustrations, however, are rude and wanting in artistic treatment, but engraving seems to have sprung at once into maturity when Vesalius published his work in 1543. As Didot well says: “Up till then wood-engraving had been used for the decoration of books or to reproduce masterpieces of painting or design rather than to represent scientific or other objects whose definition could not be so well pointed out by words as by illustrations. But in the magnificent work of Anatomy by Vesalius, wood-engraving shows itself to be henceforth the useful auxiliary of science, and proves how much the illustrations inserted in the text can facilitate the explanation.^g And the large number of reproductions of these plates, and the other illustrated anatomical works which arose like a cloud in the succeeding years, are a clear proof that the utility of the engravings was recognised, and indicate to us the great impetus which Vesalius gave to the art of engraving. In the history of the introduction of copper-plate engraving into England, also, he occupies a peculiar and important position, for he did a great deal to popularise that form of engraving when it was scarcely known there. The first example of copper-engraving in England is, probably, the illustrated title-page of the small book, “Galenii di Temperamentis,” published in 1521. In Raynald’s “Birthe of Mankynd,”^h of date 1540, there are also three specimens of this kind

^a De Vinci made his designs for a work upon the “Movement of the Human Body.” The text was written in “mirror writing,” as some say from caprice, or as Ireland (Blot on Brain) suggests, because he wrote with left hand, owing to hemiplegia of right side.

^b Choulant. *Geschichte der anatomischen Abbildung.* 4to. Leipzig. 1852.

^c J. Peylick. *Philosophiae Naturalis Compendium.* Fol. Leipzig. 1499.

^d Magni Hundt. *Anthropologium, de homini dignitate, &c.* 4to. Leipzig. 1501.

^e Spiegel der Artzny, &c., gemacht von L. Phryesen. Fol. Strasburg. 1518.

^f “Commentaria” and *Isagoges Breves*, &c. 1522.

^g A. F. Didot *Essai . . . sur la gavure en bois.* 8vo. Paris. 1863. P. 91.

^h According to John Jackson (*Treatise on Wood-Engraving.* 4to., Lond., 1861), Raynald’s name did not appear on the first edition. In the second edition (1545) the illustrations were woodcuts.

of work. But the appearance of the Anatomy of Vesalius in 1543 excited such widespread admiration in England that Henry VIII. ordered Gemini^a to reproduce the illustrations on copper. This was done, and in 1545 the whole of the plates of the Anatomy and the Epitome were issued from the press of John Hereford in London.^b The text added was that of the Epitome, and this is an evidence that the work of Vesalius was reproduced not so much because of its anatomical value as by reason of the artistic excellence of the illustrations. It will be readily understood that the fine execution of Gemini's work^c gave the people of England a high idea of the value of copper-engraving, and without doubt stimulated greatly this kind of work in the country.

(To be concluded.)

CONSERVATIVE TREATMENT OF PYOSALPINX.

KOLLOCK (*International Medical Magazine*, February, 1894) calls attention to the changes made in the treatment of pyosalpinx within the last year or two, and mentions cases treated by the conservative method which have been reported by Polk, Pryor, Krüg, Boldt, and Dudley. He claims that by this method the tube and ovary of the non-affected side and also the diseased tube may often be saved. He says further, "My experience, while limited compared to that of others mentioned, has been sufficient to convince me that the conservative system of practice is bringing us to that period when the mutilations of women, once supposed to be necessary, should cease. This, we think, will be accomplished; as we also believe that abdominal surgery, in the hands of such men as Sänger, Porro, Kelley, Price, and others, will put an end to the barbarous and murderous practice of resorting to craniotomy and embryotomy on the living foetus." He then reports four cases of pyosalpinx, three of which were entirely relieved without resorting to celiotomy.

^a He was probably a foreigner. He signs the preface of his work as Thomas Geminus Lysiensis, though it is not known what Lysiensis signifies.

^b The title is—*Compendiosa totius Anatomiae delineatio aere exarata—per Thomam Geminum (in forma fol.).*

^c Three editions were published. The first (1545) carries the Arms of Henry VIII. on the title page. The second (Lond., 1553) has the same plates, but the frontispiece had been re-engraved with the portrait of Edward VI., and the "Dieu et mon droit" at bottom of original plate still remains. In the third edition (1559), "printed at London within the Blackfryars," the portrait of Elizabeth replaces that of Edward. Dibdin (*Typographical Antiquities*, Vol. IV., p. 538) remarks that this is the earliest existing portrait of the "Virgin Queen."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Treatise on Ruptures. By JONATHAN F. C. H. MACREADY, F.R.C.S.; Surgeon to the Great Northern Central Hospital, &c. With Twenty-four Lithographed Plates and Illustrations in the Text. London: Charles Griffin & Co., Limited. 1893. Large 8vo. Pp. 442.

THIS is the most complete work dealing with this subject with which we are acquainted. Mr. Macready has made good use of the exceptional opportunities afforded to him as surgeon to the City of London Truss Society, and he has placed before us a series of tables and statistics which are most instructive and unique of their kind. These tables deal with the incidence of hernia in the sexes, the relation to age, the preponderance of inguinal over femoral, and the proportion of right to left-sided ruptures. It is a curious fact, brought out strikingly in these latter tables, that while all through life a larger number of ruptures occurs on the right than on the left side, yet it is at the extremes of life that the preponderance is most marked, while from puberty to sixty years of age the relative proportion is only about 1·2 to 1. An interesting chapter deals with the question of heredity as a predisposing cause, and the author arrives at the conclusions that "inheritance is an agent, though, perhaps, a remote agent, in the production of hernia, and that the influence of the two sexes, when equal numbers of ascendants are taken, is nearly equal. . . . The male parent tends to increase the number of males ruptured when compared with the female parent; the female ascendant not only considerably raises the proportion of ruptured among female children, but effects this chiefly by augmenting the number of femoral herniae. She also tends to increase the number of femoral herniae in males, and the influences in this respect in both sexes can be traced even to the grand-parent. . . . It has not, however, been possible to determine the actual proportion of the offspring which appears to be affected through inheritance, nor are there any facts whereby

to form an estimate of the proportion of ruptured persons who have the faculty of transmission, if such exists."

Two interesting and instructive sections deal with the relation to herniæ of anomalies of the testis, chiefly of position, and of the processus vaginalis (funicular process); while the relation of the canal of Nuck to inguinal herniæ in the female is also discussed. "If the presence of the canal," writes Mr. Macready, "is of moment in the production of rupture, it is evident that this influence wanes rapidly with the growth of the individual"—a statement based on a large number of observations by Camper, Sachs, Fére, and Wrisberg, who found that the later the age the less often is the canal patent.

Naturally a large portion of the work is devoted to treatment, and especially in the sections dealing with trusses, and with the support by mechanical means of large irreducible herniæ, the surgeon will find a large mass of accumulated information which he would find it difficult to obtain elsewhere. Here again Mr. Macready's practical experience stands him in good stead, and he is enabled to give some most valuable hints for future guidance. The chapter dealing with the operative treatment for so-called "radical cure" is hardly on a par with the rest of the book. Some of the better known operations are very briefly described, and, if we may judge from the fulness of detail given, Macewen's is the author's favourite operation. As to the results obtained or obtainable, the following paragraph discusses and dismisses the subject:—"If there is little difference between the operations in respect to their safety, there appears to be equally little in respect to their efficacy. According to the statements of those who very often practise them, and to the experience of most surgeons, they all, as a rule, cure for a certain time. The duration of the cure is quite unknown to us."

The subject of strangulation is most exhaustively dealt with, both as regards causes, symptoms, and treatment. Probably the question that at present most widely exercises the minds of surgeons in connection with this subject is—how to deal with accompanying lesions of the bowel. Mr. Macready is very definite—"The Rule of Treatment in London at the present day is to form an artificial anus. Many surgeons hold that this treatment is best for all cases of well-defined gangrene, whilst some are at the same time prepared to do primary suture in young and otherwise suitable subjects." And in a note he adds:—"Of twenty-one London

surgeons who have expressed their views upon this subject in public of late years, seventeen are in favour of forming an artificial anus, and four of doing primary suture." We feel sure a few years will revolutionise these figures.

Besides the two great types of hernia, all the less common and rare forms are dealt with; their anatomy described, and their diagnosis and treatment discussed. It will thus be seen that this really is a complete monograph on the subject, and displays an amount of knowledge and research that is awe-inspiring. Every chapter has added to it a very complete bibliography in which references may be found to all the earliest and most recent contributions to the subject of which it treats, so that Mr. Macready's monograph will prove an indispensable work of reference to all those who are interested either in the history or in the evolution of treatment of ruptures. Added to this, the work is produced in most sumptuous style—paper and type of the best, the latter being of admirable clearness. Nor must we omit a word of praise for the illustrations. There are twenty-four lithographic plates, which resemble copper-plate in their sharpness and definition, the work of Messrs. Danielsson, and we can recommend this style of illustration (taken from photographs) to future authors who are in search of that almost impossible quantity—a competent medical artist.

Lectures on the Surgical Disorders of the Urinary Organs. By REGINALD HARRISON, F.R.C.S., &c., &c. Fourth Edition, re-written. London : J. & A. Churchill. 1893. 8vo. Pp. 588.

THIS is a new and enlarged edition of Mr. Harrison's well-known work on urinary diseases, the last edition of which has been for some time out of print. Many sections have been re-written, and much new matter has been added, bringing the subjects treated of thoroughly up to date. Besides the original Lectures delivered at the Liverpool Royal Infirmary, the present volume embodies as well the Lettsomian Lectures delivered in 1888 before the Medical Society of London, and the Hunterian Lectures delivered at the Royal College of Surgeons in 1891. So that in this alone we have a guarantee that the work embraces the most recent researches in this field of special surgery. At the same time the original clinical form has been preserved; and this healthy dogma-

tism of a teacher, based on long experience and knowledge of the subject with which he deals, is not merely useful to the student, but makes the book much lighter reading. This personal element is one too often looked for in vain in modern text-books. We find them full of footnotes with latest references to "Archiv." "Fortschritte," "Journal," and "Revue." The views of German, Pole, Russ, &c., and all the up-to-date theories are there; but where is the charm of style, the power of literary expression, the intense personality of the teacher that made the writings of Watson, Graves, Stokes, Brodie, and Cooper—to mention no more—as fascinating as the last new sensation from Mudie's?

To one serious defect in Mr. Harrison's book we must direct attention, as it is one that can hardly be overlooked in a treatise which professes to deal with *urinary* diseases. There is no variety of urinary diseases in which our knowledge has so accumulated and advanced during the last decade as in diseases of the kidneys. Not only our knowledge of the various forms of disease, our power of diagnosing one from the other, and our skill in alleviating symptoms have enormously increased, but we have, in the whole field of surgery, no region where the operator has been more busy, or where, in suitable cases and with properly directed manipulative skill, more brilliant surgical triumphs have been achieved. And this very fact renders it all the more startling that by Mr. Harrison this branch of urinary surgery has been practically ignored. Until this defect is remedied the title should be modified by the substitution of "some" for "the" diseases.

Apart from this unaccountable and glaring omission we have nothing but praise for the book. It is well and clearly written, is sufficiently illustrated, and is, as we have already said, thoroughly up to date. The sections dealing with stricture, its modes of treatment, and its consequences, are admirably full and sound in their teaching, as are also those treating of the various forms of enlargement of the prostate, and the mechanical and surgical procedures adapted to their alleviation or cure. It is in such sections as these, often richly illustrated by instructive cases, that the wideness of the author's experience manifests itself most fully, and that the soundness of his judgment most commends itself to the reader.

There is a very good account of supra-pubic cystotomy, but there is one point on which we must differ, and to which we must direct attention. Mr. Harrison advises passing a silk ligature

through the bladder-wall before opening it, in order to enable the operator subsequently to keep the bladder in the wound. This is a quite inadequate step for the purpose, and the majority of bladder-walls operated on are so softened by previous chronic inflammation that a suture passed thus almost invariably tears through, and allows the now contracted bladder to retreat behind the pubes. To obviate this a most essential step is to pass a stout silk ligature right through the skin, muscles, and whole structures of the abdominal and bladder-walls from side to side. The bladder being then opened, the loop of the ligature is sought for, drawn out and divided, the ends of the silk being knotted on the corresponding sides. In this way two "ligature-retractors," as Mr. Treves has happily termed them, are provided by which the opening in the bladder can be controlled, the bladder kept close to the skin opening, and all risk of the tearing of the vesical wall obviated, as the greater portion of the strain comes on the strong and muscular abdominal walls.

On the whole, we can cordially recommend the book in its new dress, and believe that the fourth edition will secure even a wider popularity than that deservedly obtained by its predecessors.

The Pathology, Symptomatology, and Treatment of Hemorrhoids, Simple and Complicated. By THOMAS H. MANLEY, M.D.; Visiting Surgeon to Harlem Hospital, New York.

We have from time to time waded through the lucubrations of Dr. Thomas H. Manley without finding anything worthy of being placed before our readers. But now we think it only fair to give them a warning in one of the by-ways of periodical literature. *Ex uno discere omnes.* Seldom has it been our fortune to meet compressed into a like compass so many grammatical, ætiological, and pathological errors. One of the opening statements is that "Hemorrhoidal dilatation of the veins of the rectum I have found so common, in the living and dead subject after adult years are attained, that I have come to regard it as practically physiological." But he adds—"They constitute a disease only when they pursue (*sic*) the seat of pathological processes, or of an usual type, when we have an atypical condition, or we are in the presence of complications." How a physiological condition constitutes a disease when it "persues" the seat of pathological

processes; or how we arrive at "an usual type" when we have "an atypical condition," we must leave to the author to explain in future papers. Next under the "anatomical division of hemorrhoids" we find a class called "mixed;" and under the "pathological division" we find "bleeding hemorrhoids." We always thought bleeding an accidental accompaniment of a pathological process, but once more "we live and learn." A little further on we learn that "hemorrhoids become the seat of pathological changes chiefly through *infection*," and that "the most rebellious types of hæmorrhage, from so-called internal piles, are often dependent on a papilomatous (*sic*) or angiomatic state of the arterioles in the submucosa, just within the verge." What is an *arterial "papiloma"*? "A varicose state of the veins of the leg causes cutaneous and muscular atrophy; in the spermatic cord a wasting of the testicle," (?) therefore *à priori* a varicosity of the hæmorrhoidal veins ought to lead to atrophy of the mucous membrane and so to cure of the piles! The next sentence we may leave as a puzzle to be solved at will by our readers. "In the rectum the sphyncter *externus* (*sic*) and levator ani suffer from the effects of malnutrition, when the walls of the afferent vessels give way." We did not know before that either of the muscles referred to was *in* the rectum, though undoubtedly related to it. But mark the results. "A low grade of inflammation supervenes in which there is a free hyperplasia into (*sic*) the interfascicular spaces and parenchyma of the muscle fibre. This undergoes organisation with fibrous changes, so that the external sphyncter, in all cases of hæmorrhoids, undergoing pathological changes, will be found greatly thickened of a dense consistance (*sic*) and but moderately distensible." The last statement is certainly the reverse of the usual condition. Again, we learn that the first pathological changes are caused by the introduction of "micro-gymes" (whatever they may be), which "penetrate the intima;" but we are not told the source of their origin. Much nonsense is talked about the causal relation of tuberculosis, syphilis, and cancer to piles. As a sample, take the following in regard to epithelioma:—"So many cases have come under my observation in which cancerous disease has followed in the wake of hemorrhoids and *the proliferating tissue has maintained the character of piles in the embryonic elements* that I now no longer have any doubt of the frequent and direct relation." The italics are ours. A tumour that reproduces the characters of piles, and is at the

same time malignant, is one we have not hitherto seen or read of, but we are glad to make acquaintance with it. "Endeaver," "veinous," "sequellæ," "sparcity," "sphincteric dilatation," and "pulmonary anesthetics" are among the gems of orthography that brighten the pages. We have given too copious extracts to allow us to quote the author on treatment, and the curious will have to learn from his own pages the mysteries of *pressure manipulation* in the cure of piles.

Two Great Scotsmen, the Brothers William and John Hunter. By GEORGE MATHER, M.D., F.F.P.S.G. Glasgow : James Maclehose and Sons. 1893. Pp. 251.

IT is not long since a learned professor, lecturing in this city, declared that, if proof were needed that the poet Sedulius was an Irishman, it was furnished by the fact that Dublin was the only important city in civilised Europe which had not produced an edition of his works. It is not Dublin alone that is *incurioea suorum*. The author of this biography sought in vain "for a single pamphlet issued from the Glasgow press telling the story of the Hunters." London, to which, it must be said, the brothers gave the labour of their lives, has not been unmindful or ungrateful; Philadelphia has been encomiastic; even Edinburgh has produced, we are told, an essay inspired by a memory of John Hunter, but Glasgow has hitherto been silent. Dr. Mather has gone far to wipe out this reproach by publishing the handsome volume before us. The principal events of the great brothers' lives are here clearly told by an appreciative biographer; full of admiration for his subject, but discriminating and free from the *lues biographica*.

The history of the Hunterian Museums is not the least interesting portion of the contents of this volume. It is a remarkable fact that London is indebted to outsiders for the three greatest of her museums. An Irishman founded the British Museum; the magnificent collection in Lincoln's Inn Fields was mainly the work of John Hunter; the Museum of the College of Physicians was the collection of Dr. Matthew Baillie, a nephew of the Hunters, and a brother of Joanna Baillie, the poetess. William Hunter's Museum is one of the treasures of Glasgow.

The great object of this great man's life was to establish in London a museum, to aid in the advancement of medicine and surgery. With this in view he applied to Lord Bute, then Prime

Minister, for a grant of a site, offering to expend £7,000 on a suitable building, and to endow a professorship of anatomy. The zeal of British Governments for science was no greater in 1770 than it is in 1894; the site was refused and the offer declined. Undismayed by this rebuff, the old man bought a spot in Wind-mill-street, and spent £8,000. "I have collected," he said, "such an anatomical apparatus as was never brought together in any age or country." In his will he directed that after the lapse of a certain time the collection should be transferred to Glasgow. It was transferred in 1807. It may not be superfluous to say that this splendid museum is not confined to anatomical preparations or other objects of professional interest. It includes manuscripts, printed books, paintings, engravings, &c. For a portion of the collection of coins* the British Museum offered £20,000, when the refusal of Government to purchase the whole museum for London—a refusal which we cannot pretend to regret—compelled its removal to the city in whose neighbourhood the generous collector was born. To the honour of Dr. Matthew Baillie we should add that, under William Hunter's will, he had—and waived—first claim to the museum, on the failure of Government to secure it for all-devouring London.

John Hunter "directed by his will that his museum should be offered to the British Government on reasonable terms; in case of their refusal, that it should be sold in one lot to some foreign power, or otherwise disposed of as his executors might direct." Pitt was approached on the subject, and exclaimed—"What, buy preparations? I have no money to buy gunpowder!" However, after six years' meditation—the collection, meantime, being kept together and in order by Clift—the museum was purchased for £15,000, having cost £70,000. Then there was difficulty in finding a body willing to accept it as a gift! It was refused by the Royal College of Physicians, by the Royal Society, and by the British Museum. The Corporation of Surgeons had the offer next; and gladly accepted a collection which is now the glory of the Royal College of Surgeons of England, chartered in the year following their acceptance.

Visitors to the museum in Lincoln's Inn Fields cannot fail to notice an Irish contribution to its treasures—the skeleton of O'Brien, the Irish Giant. For this, or rather for the body which

* Dr. Mather informs us that the University Commissioners lately proposed to sell this magnificent numismatical treasure!

supplied it, John Hunter paid £500. The story is worth repeating. O'Brien did not want to be dissected by John Hunter, who had his eye upon him. In his will he left £200 to certain fishermen to take his body out to sea and drop it there. When he died John Hunter missed him, made inquiries, discovered the measures that had been taken, found the fishermen and said:—"Drop the body into the sea, and get your £200; but pull it out again, and bring it to me. I will give you £500."

The disgraceful story of the destruction of Hunter's invaluable manuscripts by his brother-in-law, Sir Everard Home, is briefly told by Dr. Mather. It was well known, and needs no further notice here. About the year 1789 John Hunter was "admitted a member of the Royal College of Surgeons of Ireland."

William Hunter is buried in the rector's vault of St. James' Church, Piccadilly—a church, for other reasons also, well worthy of a visit: itself one of Wren's finest constructions, and containing some of Grinling Gibbons' best work. His memorial tablet is placed between those of the great physicians Sydenham and Bright. His greater brother was buried privately in the vaults of St. Martin's-in-the-Fields. Sixty-five years afterwards—on the 28th March, 1859—his remains were removed to Westminster Abbey, and lie in the north aisle, close to the grave of Ben Jonson. The translation, as is well known, was due to the exertions (and sufferings) of the late Frank Buckland. Learning that the parochial authorities contemplated the removal and re-interment of the accumulated contents of the vaults, he determined to search for and rescue John Hunter's coffin. He spent sixteen days in the nauseous exploration. He examined 3,060 coffins, and discovered the object of his search when only three remained in the vault. The immediate result to him was "a severe attack of illness which prostrated him for some time."

Dr. Chesterfield's Letters to his Son, on Medicine as a Career. By SIR WILLIAM B. DALBY. Reprinted from *Longman's Magazine.* London: Longmans, Green, & Co. 1894.

We doubt if it was worth while to reprint these papers from the pages of a popular magazine, although they are pleasantly written and contain some shrewd observations and advice. Four subjects are dealt with—the Physician, the Surgeon, the Specialist, and the General Practitioner. We were struck with the importance

which the author—very justly—attaches to a love for children as a qualification for treating children successfully. “Are you fond of children?” he says. “If you are not you will never understand their little ways, and be able to manage them, or examine them, or be of the least use to them. They will hate the sight of you, and their mothers will loathe you. (It is no use to pretend to be fond of them if you are not; they will find you out in a moment).” Why the writer should profess to “dislike didactic advice,” which appears to be the *farrago libelli*, is not apparent—any more than why he should attribute to President Lincoln Hosea Biglow’s aphorism, quoted from his grandfather—“Don’t never prophesy unless you know;” but after this profession he gives some excellent “didactic advice,” to which others besides general practitioners will do well to hearken “I feel constrained for once to give you a golden rule. It is never to speak ill of any of your fraternity, whatever you may think. You will do yourself no good, and it will only be thought that you are jealous.”

The Medical Annual and Practitioner’s Index: a Work of Reference for Medical Practitioners. 1894. Twelfth Year. Bristol: John Wright & Co. 8vo. Pp. 799.

THIS work grows in excellence each year, and is now everywhere recognised as a standard book of reference.

The general arrangement is unaltered from that of former issues. Part I. is devoted to Therapeutics, and includes a dictionary of new remedies placed in alphabetical order, together with a review of therapeutic progress for 1893, by Professor H. A. Hare, M.D., of the Jefferson Medical College, Philadelphia, and editor of *The Therapeutic Gazette*.

Part II. deals with New Treatment, and includes a dictionary of new treatment in medicine and surgery, likewise arranged in alphabetical order, and running from “Abdominal Surgery” to “Worms.” This constitutes by far the largest portion of the book, extending to almost 550 pages. One of the most comprehensive contributions to this part is an exhaustive article on Insanity by Dr. James Shaw. The subject which he especially discusses is facial expression as one of the means of diagnosis and prognosis in mental diseases. Neither trouble nor expense seems to have been spared in illustrating this article by means of photographs and coloured sketches.

In Part III., devoted to miscellaneous topics, we find an article on "Sanitary Science," by Dr. Joseph Priestley, D.P.H., Medical Officer of Health for Leicester; sections on dietetic preparations, the progress of pharmacy, and new inventions.

At the end of the volume we find the usual alphabetical lists of lunatic and idiot asylums and homes for inebriates in Great Britain and Ireland, of training institutions for imbeciles, and of hydropathic establishments; also a list of the principal medical works and new editions published during 1893; and, lastly, the "Medical Annual Official and Trade Directory," in which much useful information is contained within a narrow compass.

The Medical Reporter. A Record of Medicine, Surgery, Public Health, and of General Medical Intelligence. Edited by LAWRENCE FERNANDEZ, M.D., L.R.C.P & S. Calcutta.

THE growth of the unofficial constituent of the medical profession in India has been very remarkable within the last ten years; and the appearance of professional periodicals, manned by medical men unconnected with Government, and devoted to the interests of the unofficial practitioner, is a healthy symptom. We do not remember to have previously seen this monthly, now in its third volume. We learn from the number before us that it is proposed to form an Indian Medical Association, the rules being here published as a Supplement. We observe, also, that the prospects of the foundation of a Pasteur Institute in India are excellent, the Government of India and the Provincial Governments being favourable. We welcome this accession to Indian medical journalism, and regret that Madras has fallen behind the other Presidency capitals in professional literature.

IL NUOVO CIMENTO.

We have received the first two numbers of the third series of this monthly periodical published at Pisa. It was originally founded—thirty-four volumes ago—by SS. C. Matteucci and R. Piria, and is now conducted by SS. Felici, Battelli, and Volterra. It is devoted to mathematical and physical science, and claims to be the only Italian journal representing Physics. The contents are technical in the highest degree and "caviare to the general." Its papers are in no way related to practical medicine.

PART III.

SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.*

By SIR CHARLES A. CAMERON, M.D.; D.P.H., Camb.; M.R.C.P.L.; Ex-President Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.; President of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee.

POISONOUS EFFECTS OF CARBONIC ACID AND OTHER GASES.

WE have always been led to suppose that a very small proportion of carbonic acid in air proves rapidly fatal to life. In Roscoe's Chemistry it is stated that even 3 to 6 per cent. in air prevents combustion of a candle. Dr. Angus Smith says that 4 per cent. suffocates. Mr. Joseph H. Wilson, in a lecture delivered in the Philadelphia College of Pharmacy, and published in the *American Journal of Pharmacy*, Vol. LXV., No. 12, gives us the results of some extraordinary experiments with carbonic acid and oxide, and other gases on animal life. He claims great exactness in the conduct of his experiments on account of the means which he took to ensure the proper proportions of the gases and air which he used, and to maintain a continuous supply of them to the animals experimented with.

The apparatus used by Mr. Wilson is termed the "Shaw gas tester." It consists of two pumps, with pistons attached to a graduated arm, so that one cylinder can be set to pump, say, 10 per cent of gas, and the other 90 per cent. of air. The products of the two pumpings are mixed and forced through an ejector

* The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

before being delivered into the vessel in which the experiments are being made. Mr. Wilson says that this apparatus is the most perfect of its kind in the world, and that it is to gases what scales and weights are to solids.

A rabbit was placed in a glass cylinder, and was supplied with a mixture of 90 per cent. of atmospheric air, and 10 per cent. of carbonic acid. After breathing this mixture for an hour and seven minutes the only effect observed on the animal was exhilaration; on being released, and placed amongst other rabbits, it exhibited more liveliness than any of them. In another experiment, in which the carbonic acid was increased to 25 per cent., the result was the same. After inspiring this mixture for an hour the rabbit was as lively as before.

In a mixture of equal parts of air and carbonic acid, a rabbit began to gasp in two minutes, and died in seventeen minutes. In a mixture of 75 per cent. of carbonic acid and 25 per cent. of air, death took place in ten minutes. Experiments with mice led the author to the conclusion that small animals resist the toxic effects of carbonic acid less than large ones. Nevertheless, 25 per cent. of carbonic acid in air did not prove fatal to a mouse.

As to carbonic oxide, Mr. Wilson's experiments show that the gas is much more poisonous than carbonic acid. This fact has already been thoroughly established, but Mr. Wilson shows that the toxic properties of carbonic oxide is not so great as has been alleged. The late Dr. Letheby asserted that 0·5 per cent. of carbonic oxide killed small birds in three minutes, and 2 per cent. rendered guinea-pigs insensible in two minutes.

Mr. Wilson found, 1st, that 2 per cent. of the gas did not prove fatal to a rabbit in 45 minutes, but the animal became semi-comatose; on being placed in the pure air it was capable of maintaining its equilibrium. A rabbit placed in 2·5 per cent. of carbonic oxide, and 97·5 per cent. of air, became semi-comatose in five minutes, but revived almost immediately on being placed in pure air.

A mouse placed in a mixture of four parts of carbonic oxide and 96 parts of air, died in four and a-half minutes.

An atmosphere containing 1 per cent. of carbonic oxide produced in thirty minutes no effects upon a mouse; but the percentage of CO increased to 2 per cent. proved fatal in ten minutes upon them. The poisonous effects attributed to the gases evolved from lime kilns during the preparation of lime and the fumes of

burning charcoal are really chiefly, and, perhaps, sometimes wholly, produced by carbonic oxide and not by carbonic acid.

In Watt's Dictionary of Chemistry, 1 part of sulphuretted hydrogen in 1,000 parts of air is said to be fatal to the lower animals. Mr. Wilson found that 0·5 per cent. killed a rabbit in three minutes, and 0·2 per cent. in ten minutes, and 0·1 per cent. in thirty-seven minutes. Exposure to air, containing 1 $\frac{1}{2}$ per cent. of one per cent. of H₂S, produced no apparent effect on a rabbit.

Mr. Wilson found that coal-gas to the extent of 10 per cent. killed a rabbit in thirteen minutes, and air containing 5 per cent. of this gas in thirty minutes. As the gas was made in part by the action of water on carbon, it was rich in carbon monoxide (carbonic oxide), and, therefore, these experiments are not conclusive as to the effect of coal-gas made altogether from coal, and containing small quantities of carbonic oxide. These experiments are very interesting; they prove that sulphuretted hydrogen is a deadly poison, and that even a minute quantity in the air is dangerous to health. The danger likely to arise from leakages of coal-gas are exemplified, and the bad reputation of carbonic oxide is only slightly modified. The experiments with carbonic acid seem to show that large quantities of that gas can be breathed with impunity. Indeed, it has often struck us that the men engaged in the manufacture of aerated waters must breathe an atmosphere highly charged with carbonic acid gas, and yet it seems to have no bad effect upon them.

SANITARY MEASURES IN INDIA.

We have been much interested by the perusal of Reports on the Sanitary Measures in India, in 1890-91 and 1891-92. They have been collected by the Indian Government, and presented to Parliament in the shape of two Blue Books.

The volume for 1891-92 is the more interesting, as it contains some of the more important results of the Census of 1891.

In the ten provinces into which India is divided, the highest birth-rates were registered in Berar and the Central Provinces, where it was 43·09 and 42·8 per 1,000 of the people. The lowest rate was in Lower Burma, where it was only 20 per 1,000, but, of course, this was due to defective registration. On the whole it would appear that the birth-rate in India is much higher than in Europe.

The following table shows the death-rates in the ten Provinces:—

	CHOLERA	SMALL-POX		FEVER		DYSENTERY AND DIARRHOEA		DEATHS FROM ALL CAUSES			
		Total Deaths	Ratio per 1,000	Total Deaths	Ratio per 1,000	Total Deaths	Ratio per 1,000	Total Deaths	Ratio per 1,000		
Bengal, excluding Calcutta	229,575	8.26	16,198	0.23	1,833,895	18.94	49,183	0.61	1,896,261	26.94	24.48
Calcutta	1,558	8.32	18	0.02	4,675	10.02	1,483	8.07	13,083	27.94	27.98
North-Western Provinces and Oudh	169,018	8.60	26,845	0.56	1,083,059	22.02	49,586	1.06	1,460,782	31.14	37.27
Punjab	10,107	0.49	3,426	0.17	442,254	21.52	12,152	0.59	598,769	29.13	46.87
Lower Burma	2,400	0.52	1,826	0.29	35,658	7.76	4,162	0.91	73,190	15.98	17.40
Central Provinces	21,812	2.42	748	0.08	190,550	21.61	20,889	2.87	313,864	35.54	82.53
Cooch	7	0.04	476	2.75	2,708	15.61	172	0.99	8,771	21.79	25.88
Assam	20,892	4.76	2,851	0.47	75,985	15.18	14,418	2.87	160,156	29.91	39.84
Madras	98,778	8.5	41,822	1.4	247,029	8.6	84,228	1.2	747,553	26.2	22.80
Bombay	17,850	0.95	1,491	0.06	368,918	19.60	87,728	2.00	513,182	37.36	28.18
Berar	7,958	2.8	84	0.01	49,860	17.5	22,007	7.7	115,558	40.6	35.49
Total	589,480	2.81	98,747	0.45	3,784,051	18.27	289,953	1.15	5,885,539	28.42	30.14

The death-rate varied from 40·6 per 1,000 in Berar, to 15·93 in Lower Burma. In the latter case the registration is declared to be very defective. The average rate in the ten Provinces was 28·42. The rate in the Central Provinces was 35·54, and in the North Western Provinces and Oudh, 31·14.

As in the case of the birth-rate, so also in that of the death-rate, there is an excess as compared with Europe.

The causes of death in India constitute an interesting study. In Europe the zymotic diseases occasion not more than 20 per cent. of the total mortality. In these countries not more than 12 to 15 per cent. of the deaths are ascribed to fevers. In Dublin only about 10 per cent. of the deaths result from the principal zymotic maladies. In India, on the contrary, a large proportion of the deaths are ascribed to zymotic diseases. In 1891 the general death-rate was 30·14 per 1,000, whilst the fever death-rate was no less than 18·27. To this must be added a death-rate of 2·81 from cholera, and 0·45 from smallpox. The rate from fevers, cholera, and smallpox combined was 21·53, or more than two-thirds of the total death-rate.

In Bengal the principal zymotic diseases caused deaths in the ratio of 22·43 per 1,000 of the population, leaving for all other diseases, accidental deaths, suicides, &c., only a rate of 4·51 per 1,000. If we deduct from this 0·61 per 1,000, the rate for dysentery (a zymotic disease), the 4·51 rate becomes further lowered to 3·9.

In 1891 70 per cent. of the deaths in the Punjab were ascribed to fevers, chiefly malarial. It is an astounding fact that the death-rate from fevers (excluding smallpox, cholera, dysentery, and diarrhoea) is greater in Bengal than the total death-rate in England.

There is evidently a vast field for the work and reforms of the sanitarian in India. The fevers are admitted to be preventable diseases. In Europe they have been steadily declining during the present century. One of them—namely, typhus, has almost disappeared. If their ravages were reduced in India to the same extent as in Europe the Indian death-rate would be extremely small. Of course, those who do not die from fevers die from some other diseases, and the reduction of the mortality due to the former would be followed by an increase in the mortality caused by other diseases. Still, as the victims to fevers are largely composed of young persons, the lessening of the fever death-rate

would not be followed by an equivalent increase in the mortality due to other maladies. The lessening of the fearful mortality caused by fever would be followed by a substantial decline in the general death-rate.

With respect to vaccination, we learn that the proportion of the population protected was equal to 26·78 per 1,000; 67·9 per cent. of the children born in Berar (which seems to be a progressive place) were successfully vaccinated. In the North Western Provinces and Oudh only 20 per cent. of the children born in 1891 were successfully vaccinated.

In 1891 there were 67,030 European troops in India, and their death-rate was 15·89 per 1,000. In the period 1877–79 the rate was 19·34; 1881–90, 14·24; and in 1890, 13·84. In 1891 20·4 per 1,000 of the troops were admitted to hospital suffering from typhoid fever, and from all causes 80 per 1,000; of the total deaths 36 per cent. were due to enteric fever, and 16 per cent. to cholera; 5·76 per 1,000 of the troops died from enteric fever, as against 4·91 in the preceding year. In Bengal 40 per cent. of the deaths were caused by enteric fever, and 16 by cholera. In Madras the enteric fever death-rate was 20 per cent. of the total rate from all causes, whilst the rate from cholera was 11 per cent. It is clear that our soldiers suffer severely from enteric fever when stationed in our great dependency.

The percentages respectively of enteric fever, dysentery, hepatitis, and pneumonia, of the total deaths in the three great provinces, are shown in the following table:—

1891.

—	Bengal	Madras	Bombay
Enterio fever .	89·4	21·2	89·2
Hepatitis .	6·1	10·9	5·0
Dysentery .	2·6	3·1	3·3
Pneumonia .	8·0	4·7	3·3

It appears that the newly-arrived soldier is much more liable to contract enteric fever than the soldiers who have been for some time in the country, and that an increased length of service rapidly diminished the tendency to the disease.

The following table is of interest :—

Statement showing the Death Ratios of the European Army from Enteric Fever at different Ages, together with Ratios of Liability to it.

YEAR	MORTALITY FROM ENTERIC FEVER AND RATIO OF LIABILITY TO IT AT DIFFERENT AGES					
	24 and under		25 to 39		30 to 34	
	Deaths per 1,000	Percentage of Liability	Deaths per 1,000	Percentage of liability	Deaths per 1,000	Percentage of Liability
1889 .	9.81	64.50	8.25	21.37	1.83	12.03
1890 .	7.78	65.93	2.84	24.07	1.18	10.00
1891 .	9.11	68.65	2.97	22.38	.71	5.35

A remarkable immunity of women from certain diseases is shown in various parts of India. For example, in 1891 no deaths from diseases of the respiratory organs or from tubercle occurred amongst the women attached to the army.

It is remarkable that whilst enteric fever is ten times more fatal amongst European troops in India than at home, this disease is almost unknown in the native army. In 1891 only 17 deaths from it occurred in the whole of the Indian army, numbering 126,800 men. In 1891 the enteric fever death-rate was 5.76 per 1,000 amongst the European troops, and 0.13 amongst the native soldiers. On the other hand, the deaths from ague were 0.18 per 1,000 amongst the Europeans, and 1.32 per 1,000 amongst the native troops.

These volumes give an account of the numerous sanitary works undertaken or carried out in 1890-91, and which, no doubt, will help to lessen the ravages of zymotic diseases in this vast empire.

DETECTION OF HORSE-FLESH.

There seems to be little doubt as to the occasional sale of horse-flesh—not under its proper name, but as the flesh of other animals. On the Continent this fraud is said to be by no means uncommon. Brantizam and Edelmann have published* a process for the detection of horse-flesh, based on the use of the well-known reaction of iodine with glycogen. Now horse-flesh always contains glycogen, and therefore a decoction of the flesh can be tested for this substance. Finely comminuted it is boiled with four times its weight

* *Phar. C. H.* 1893. XIV. 557.

of water, and the resulting broth treated with dilute nitric acid, which precipitates the albuminoids. Then by filtration a pretty clean clear liquid is obtained, and brought into contact with a saturated solution of hydriodic acid. The liquids, where they come in contact, form a red or violet ring. If meat does not give this reaction, of course it is not horse-flesh. Should water fail to get the glycogen into solution, a solution of caustic potash will dissolve it. The potash must be 3 per cent. of the weight of the flesh.

VAGRANTS AND THE DISSEMINATION OF DISEASE.

Dr. Henry Armstrong, the able Health Officer of Newcastle-on-Tyne, read an interesting paper upon the above subject before the Incorporated Society of Medical Officers of Health on the 15th of January last. He pointed out that the introduction of smallpox into Newcastle in December, 1892, was due to a tramp, who, whilst affected with that disease, was admitted to the Workhouse. He found often that tramps also introduced this serious disease into nightly lodging-houses, occasioning thereby a great deal of trouble and some expense to the sanitary authority. Dr. Armstrong points out numerous instances in which smallpox was introduced into other towns by tramps and vagrants, and considers that there is a gross defect in the present system of the administration of Preventive Medicine, viz.—“that a week allows the broadcast spread of disease by vagrants.” It seems that Dr. Armstrong learned, from inquiries which he made, from Medical Officers of Health, that of 63 places invaded by smallpox 59 per cent., had the infection conveyed into them by vagrants.

The replies to inquiries made by Dr. Armstrong from Health Officers are summarised by him as follows:—

1. Where an epidemic is prevalent it should be possible to prevent vagrants visiting the district, and to arrest them on infringement of this condition.
2. Only a county medical officer of health can deal with diffusion of disease through a county.
3. Vagrants should be systematically examined on entering the union.
4. Strict inspection should be maintained, with history of routes travelled.
5. Make compulsory the medical inspection of all vagrants with the view of discovering mild cases which might otherwise escape notice.
6. Attend closely to the common lodging-houses, especially by night.

7. Each common lodging-house should provide a free bath, and each vagrant should have fresh water.
8. Common lodging-houses might be closed for a time.
9. The establishment of model lodging-houses in towns should be general.
10. Sanitary authorities and Poor Law and Union authorities should be compelled to provide means of isolation.
11. Adopt the separate cell system at all unions.
12. Vagrancy should, as far as possible, be prevented, say, by retaining all tramps who enter workhouses for a fortnight, and compelling them to work whilst there.
13. Vagrants should be detained under observation.
14. The medical officer of health should keep a spare room for suspected vagrants.
15. Suspicious cases should be isolated immediately.
16. Vagrants should not be allowed to invest the crowded precincts of police stations for orders for admission to the workhouse. If the police continue to give these orders a separate place should be provided for the purpose.
17. Every vagrant should be re-vaccinated; better still, everyone else.
18. Re-vaccination of all vagrants lodged in a casual ward should be compulsory. If they had the choice between being re-vaccinated or doing their task they would, in the majority of cases, prefer the former.
19. Vagrants should be allowed to travel about on ticket or pass only.
20. There should be communication with prisons, workhouses, common lodging-houses, masters of canal boats, &c., directing attention to prevalence of epidemic and local powers relating thereto.
21. More attention should be paid to the migratory habits of other persons than vagrants.

There is certainly wanted some law to control the movements of vagrants and tramps, so as to prevent them from being the vehicle of infective disease, especially in epidemic times. Mere vagrancy appears to be a condition which subjects a person practising it to the surveillance of the police, but the sanitary authorities seem to have no special powers in regard to vagrants; the sooner they have the better for the community.

RECREATION.

Mr. William Odell, F.R.C.S., gave an address on "Recreation" at the Torquay Natural History Society, which he has published in pamphlet form.* It mainly consists of extracts from the

* London : Simpkin, Marshall, Hamilton, Kent & Co. 1893.

writings of eminent medical men, or from their correspondence with Mr. Odell. The advantages of regulated exercises are well described:—

Sir William Savory says:—"The necessity of exercise to the preservation of health is allowed by everyone, and yet, perhaps, few realise the importance of the changes it involves. Take, for instance, the effect of muscular exercise on the respiration. In ordinary circumstances of rest, a man draws in 480 cubic inches of air per minute; if he walks at the rate of four miles an hour, this quantity will be increased five-fold, so as to amount to 2,400 cubic inches in the same time. Or to put it in another way. It was found by experiments that a man at rest inspired per hour 27 cubic feet of air. This represents the absorption of 416·8 grains of oxygen, and the exhalation of 603 grains of carbonic acid, equal to 164 grains of carbon. But during exercise, in the same period, he inspired 64·9 cubic feet of air, which represents the absorption of 1,829·6 grains of oxygen, and the exhalation of 2,501 grains of carbonic acid, equal to 682 grains of carbon. From these, and similar calculations, it would seem that fair exertion for ten hours a day would increase the elimination of carbon in twenty-four hours by about one-third over the amount in the same time during rest. It is highly probable that this large formation of carbonic acid takes place chiefly in the muscles. But the quantity of carbon excreted is so great, and in such excess over the nitrogen, that it cannot be accounted for by the destruction of the proper substance of muscular tissue only. Either fat or some other non-nitrogenous body rich in carbon which is present in the muscles must be consumed by their action.

"Certain rules follow on this fact. During exercise, the action of the lungs should be thoroughly free. No impediment should be offered to the full play of the chest by dress or any other means. And it is obvious that the increase of loss demands an increase of supply in the form of proper food and fresh air."

Sir James Paget states:—

"In the general meaning of recreation we include two chief things—namely, the cessation of the regular work of our lives, and the active occupation, whether of body or mind or both, in something different in which we find pleasure. From both alike we expect and may obtain refreshment, that is, renewed fitness for our regular work. In the former of these parts of recreation, speaking generally, the structures of our body which have been at work are left to rest or are exercised in a different manner; in the latter, those which have not been at work are brought into activity . . . Man alone refreshes himself by changing his method of activity; man alone has habitual active recreations. And it may be

generally observed, among the several races of men, that those which are the most highly cultivated, and whose occupations are the most various, strong and intellectual, have the most numerous and most active recreations.

"Now, I think that if we look for the characteristics which may be found in all good active recreations, and on which their utility chiefly depends, we shall find that they all include one or more of these three things: namely, uncertainties, wonders, and opportunities for the exercise of skill in something different from the regular work. And the appropriateness of these three things seems to be, especially, in that they provide pleasant changes which are in strong contrast with the ordinary occupations of most working lives, and that they give opportunity for the exercise of powers and good dispositions, which, being too little used in the daily business of life, would become feeble or lost. . . ."

A useful table, by Sir J. Crichton Browne, referring to hours of sleep, is given as follows:—

4 years of age	-	12 hours.	14 years of age	-	10 hours.
7 "	"	- 11 "	17 "	"	- 9½ "
9 "	"	- 10½ "	21 "	"	- 9 "
28 years of age			- 8 hours.		

RECURRENT OF MAMMARY CANCER.

THE *Provincial Medical Journal* holds its place in the first rank of English medical periodicals. The March number contains a good likeness of Dr. Russell Reynolds. From a paper by Mr. Roger Williams we extract the following table, based on 599 cases of recurrent mammary cancer, showing the periods at which recurrence is probable:—

Interval between operation and first obvious recurrence	Total cases	Per cent.	Interval between operation and first obvious recurrence	Total cases	Per cent.
Under 3 months	- 238	39.7	12 to 24 months	- 64	10.8
3 to 6 months	- 117	19.5	2 to 3 years	- 25	4.2
6 to 12 months	- 129	21.5	Over 3 years	- 26	4.3

CASTOR OIL.

It takes four men to give an elephant castor oil, the dose being $\frac{3}{4}$ cxxvij. We have known it to take three women and two men to give a small boy castor oil, dose only 3 j.—*Gaillard's Med. Jour.*

CLINICAL RECORDS.

*Notes on Uncommon Forms of Skin Diseases.** By R. GLASGOW PATTESON, B.A., B. Ch., Univ. Dubl.; F.R.C.S.I.; Surgeon in charge of the Skin Department, St. Vincent's Hospital, Dublin.

VII.—ERYTHÈME INDURÉ DES SCROFULEUX (BAZIN).

In previous numbers of these notes I have from time to time dwelt on some of the features of the large and polymorphous group of erythematous affections, and it is to one of its less known, though hardly less rare, varieties that I now desire to attract attention. In one sense it may be looked upon as a new disease; for, though described by Bazin so long ago as 1861, it had for a long time been overlooked or forgotten, and it is only within the past couple of years that the attention of dermatologists in these countries has been specially drawn to it, and a very considerable number of cases reported.

Bazin's description of the disease is so full and striking that it can hardly be improved upon. In his *Leçons sur la Scrofule* (1861), p. 146, under the head of "Scrofulides érythémateuses," he writes as follows:—
"L'erythème induré, de nature scrofuleuse, n'est pas rare; il se caractérise par des plaques rouges, indurées, sur lesquelles le doigt appliqué fait momentanément disparaître la rougeur, qui ne tarde pas à reparaître au bout de quelques instants. On sent à la peau et sous la peau une induration qui s'enfonce plus ou moins profondément dans le tissu cellulaire sous-cutané. La rougeur, plus ou moins foncée, assez souvent violacée, plus marquée au centre, se fond insensiblement sur le circonférence avec la couleur normale de la peau. Il n'y a sur ces plaques aucun prurit; la pression avec le doigt y est à peine douloureuse. Cette affection s'observe communément sur les jambes, plus souvent peut-être chez les filles que chez les garçons. Je l'ai souvent rencontrée sur les jambes des jeunes blanchisseuses, chez des jeunes filles offrant tous les attributs de la fraîcheur et de l'embonpoint scrofuleux. Son siège de préférence est la partie externe et inférieure de la jambe. On la voit quelquefois aussi siéger un peu au-dessus du talon, le long du tendon d'Achille. Enfin on peut la remarquer encore sur la face, et je l'ai vue, sur cette région alterner avec l'ophthalmie scrofuleuse." And in the following year in his *Leçons sur les Affections Génériques de la Peau*, he sums up its characteristics, while differentiating it from erythema nodosum:—"Enfin

* Continued from the number of this Journal for January, 1892. Vol. XCIII., No. 241, p. 78.

l'érythème induré des scrofuleux est caractérisé par des larges plaques dont la coloration est la même sur tous les points, l'induration souscutanée sensiblement égale et qui ne donne naissance à aucune douleur quand on les presse entre les doigts, tandis que l'érythème noueux, affection avec laquelle on pourrait la confondre, présente successivement toutes les nuances de l'ecchymose, et est douloureux à la pression, &c. Enfin, l'érythème noueux ne persiste pas au dela de dix-huit à vingt jours, tandis que l'érythème induré se perpetue pendant les mois." (P. 73.)

Recent accounts of the disease with records of cases have been published by Mr. Jonathan Hutchinson^a and by Dr. Colcott Fox,^b and it was the study of these papers that first made me acquainted with its clinical features, though judging from nine months' experience it seems to be far from a rare disease, though often overlooked or wrongly diagnosticated.

CASE I.—Mary R., aged eighteen, first came to the out-patient department at St. Vincent's Hospital, in November, 1889. She was an unhealthy-looking girl, with a dark, sallow complexion, and thickened alæ nasi and lips. She was suffering from multiple small punched-out ulcers of a peculiarly sluggish and unhealthy type, situated on the anterior aspects of both legs. The surrounding skin was of a dark livid colour, extremely indurated and but slightly movable over the underlying tissues. There were numerous small outlying nodules which were not elevated but could be felt underneath the skin, and were marked by a superficial brownish pigmentation. Some of these had broken down and were discharging through a tiny pin-hole opening a small quantity of sero-pus. These spots and ulcers were absolutely painless, appeared to spread by direct infection of tissue, and showed no tendency whatever towards healing. They were partially symmetrical, and no other part of the body was affected. There was no enlargement of the inguinal or any other glands. No history of syphilis, either hereditary or acquired, could be obtained; but so certain was I from the characters of the ulcers—which resembled broken-down superficial gummata—that some such taint was present, that the patient was put on a course of specific constitutional treatment, while a mild mercurial ointment was used locally. This treatment was pursued for some months, alternating with simple tonic treatment, but without any marked effect on the progress of the disease. During this period she had two or three attacks of inflammation of the anterior nares with induration and thickening, and the formation of crusts, much resembling the early stage of lupus. There was also some irregularity of menstruation about this time. For some months I lost

^a Archives of Surgery. Vol. V. No. 17. July, 1893, p. 31.

^b British Journal of Dermatology, August and October, 1893.

* This case has already been published in the British Journal of Dermatology, November, 1893.

sight of my patient, and she had almost drifted out of my recollection as a case of anomalous syphilis when, in October, 1890, she was brought to me again by her mother on account of a swelling in her neck. On examining the part I found a chain of enlarged, indurated glands extending from ear to ear, the largest about as big as a walnut, and presenting all the characteristics generally associated with tubercular adenitis. On inquiring about the ulcers on the legs, I found that they had to a great extent healed, leaving dusky brownish-coloured patches which had remained permanently, but that recently, since the enlargement of the neck had been noticed, many of them had broken down again, and that there were once more numerous ulcers on both legs. These, on examination, showed the same features as previously—the congestion and induration being well marked, but the circular, or oval, punched-out character was not so prominent, and the margins were more irregular and undermined. I now shifted my ground and put the case under the group of tubercular lesions of the skin, not a true lupus, but a variety of scrofulodermia. The treatment adopted was locally a stimulating ointment, internally cod-liver oil and the hypophosphites of sodium and calcium combined with tonics. Very marked improvement took place in the course of the next few months. Her general health improved; menstruation became regular; the ulcers on both legs almost completely healed, and those remaining had taken on a healthy action; and the glands in the neck had undergone a most noteworthy diminution in size and were much softer—evidently undergoing a gradual process of resolution. I saw her once two or three months afterwards; the legs were then quite well, only some superficial scarring and brown pigmentation remaining, but there was still considerable enlargement of the cervical glands. Since then the patient has been lost sight of.

CASE II.—Annie Q., aged fourteen, is a plump, rosy-complexioned girl, well grown and developed for her years, and at a first casual glance looks the picture of health. She has, however, a decidedly bad family history, several of her brothers and sisters having been treated for various manifestations of tubercular disease. She was sent from the Loretto Convent to St. Vincent's Hospital on account of pains and lumps in her legs, and gave the following history: About six months ago she first noticed some lumps in her legs, chiefly on the backs, which were quite painless, but slowly increased in size while fresh spots appeared from time to time. Gradually the skin overlying the nodules became discoloured, and latterly she has suffered a good deal of pain after standing for some hours in school, and these were the circumstances that led to her being sent to the hospital for treatment. Examination revealed the presence of numerous nodules in both legs—twelve to fifteen on each. They were

* This case was shown at the Dublin Biological Club, February 13, 1894.

situated almost entirely below the level of the calves, and those on the left leg were confined to the posterior aspect of the limb. On the right side, however, they encroached on the internal and anterior aspects though more numerous behind. Those on the left leg were also more fully developed; and just about the middle posteriorly two large nodes had become confluent, and the overlying skin which was tense and of a dark purplish colour seemed just on the point of giving way. There was no local tenderness or pain on handling. Every stage of the process was clearly manifested—from the earliest, where the subcutaneous tubercle could be felt but not seen; through the intermediate, where the nodule now grown larger was covered with the bright red and inflamed skin (much resembling the acute stage of erythema nodosum) and was evident both to sight and touch; to the final, where the larger and more diffused node lay projecting quite superficially, while the tense and dark "violetaceous" overlying skin seemed ready to break down and form an ulcer at any moment. None of the related lymphatic glands were affected; but, on the left side of the neck there were two enlarged glands just in front of the sterno-mastoid muscle and below the angle of the jaw. She was put upon tonic treatment, was ordered cod-liver oil, rest, and elastic pressure by means of rubber bandages, and, locally, the application of the ointment recommended by Mr. Hutchinson, containing four grains of bisulphuret of mercury to the ounce. A month later I saw her again. She had not yet got the rubber bandages and had been going about as usual, with the result that the spot on the left leg had broken down into a characteristic shallow, sharply punched-out ulcer, covered with dusky, unhealthy granulations, and emitting only a slight serous discharge. A short time subsequently I saw her again. The legs had been kept banded and, though she was still going to school, a large number of the small outlying tubercles had disappeared and others seemed in the process of resolution. The condition of the ulcer was unchanged.

CASE III.—Sarah L., aged eighteen, a servant, was brought to me by her mistress on account of some menstrual irregularity. She was a fine, well-developed girl, but decidedly anaemic, the pallor of the mucous membranes being very evident. She had only been four months in town, having previously lived all her life in the country, and during that time the menstrual flow had been getting less and less until it completely vanished. Quite accidentally she happened to remark that her legs were swollen occasionally of late, and, on examination, expecting to find the usual œdema of the feet and ankles, I was astonished to see that there was no trace of œdema, but that the posterior lower thirds of both legs were covered with from ten to twelve dusky purplish patches which, on palpation, were found to correspond to underlying subcutaneous nodules just as in the previous cases. Many others could be felt, small and deeply

seated but not implicating the overlying skin or giving rise to any projection of the surface. There was no pain or tenderness in any part, and had it not been for the increase in the size of her leg she would have been unconscious of any abnormality in the part. There was in no part any undermining of the skin or apparent tendency towards ulceration. Tonic treatment was clearly indicated and, in addition, mechanical support and friction with soap and iodide liniment was recommended. A fortnight later there was a marked improvement; many of the smaller nodes had disappeared, and the remainder seemed softer than when I first saw her. She is still under observation.

These three cases admirably typify the degrees of severity of the disease, and the characters on which the diagnosis rests. Clearly the affection is not an uncommon one, and it is more than probable that, now attention has been directed to it, numerous cases will be put on record. The chief points of interest in connection with it are, its resemblance to syphilis, and its relation to other manifestations of tubercular disease. It appears to preponderate largely among females: in fact Dr. Colcott Fox states he has never seen a case in a male. But it does undoubtedly occur in both sexes, and I have seen one case in a boy aged eleven, but as I only saw him once and have no notes of his case, I have been unable to include him in the present series.

The main facts of the clinical and natural history of the affection may be briefly summed up in the following propositions:—

1. That *erythema induratum scrofulosorum* is a definite morbid entity, resembling in many of its features the affections of the erythematous group.
2. That it is clinically distinct from the forms of tubercular disease known as scrofulodermia and lupus.
3. That while ulceration may, and does in the majority of cases ultimately occur, it is not the essential or characteristic feature of the disease.*
4. That it differs from *erythema nodosum* in the absence of febrile or rheumatic manifestations, in the non-occurrence of rapid pigmentary changes, in the slowness of its evolution, and in the site of predilection of the disease.
5. That in the ulcerated state it differs from syphilis, which it then most closely resembles, in its being a local affection mainly confined to the legs, in the absence of pain and of gummatous degeneration, in the

* Ulceration is the feature selected by Mr. Hutchinson as characteristic, though it is in reality the least specific feature of the disease; and, with his predominant passion for personal nomenclature, he describes his cases under the title of "Basin's Malady: Multiple Ulcers of the Legs," although in many instances ulceration is slight or absent altogether.

absence of general constitutional symptoms, and in its refractoriness to specific treatment.

6. That at some period of its course it is in the large preponderance of cases associated with tubercular enlargements of lymphatic glands.

7. That the essential feature of the disease consists in the slow and painless evolution of subcutaneous tubercles situated most frequently and usually symmetrically on the backs of the legs below the level of the calf, and running a chronic course which ends either in spontaneous resolution or in the undermining and violaceous discoloration of the overlying skin followed by the formation of irregular, shallow, and unhealthy ulcers.

A CASE OF ACROMEGALY.

MOYER details a case of this rare disease—acromegaly—in a man twenty-four years of age, which began at the age of seventeen by rapid growth of the whole body, especially of the hands. At twenty the eyebrows began to enlarge. Subsequently to an attack of influenza he had had pain in the head, the hands, and fingers. The present condition shows enlargement of the frontal sinuses and of the soft tissues covering them; the nose is large, the lower jaw wide, and the lips thick. The circumference of the head is 24·5 inches. The spade-like, symmetrical hands measure 9 inches in length and 4·5 inches across the palm, and are covered with coarse, thick skin. The mental capacity has failed. Examination of eyes showed a high degree of hyperopia of both eyes, squint of right eye, with some optic atrophy, and amblyopia of the left.—*International Medical Magazine*, February, 1894.

A CASE OF MULTIPLE OSTEO-ECCHONDROMA.

WHITTAKER, of Cincinnati (*International Medical Magazine*, February, 1894), reports, in detail, an interesting case of multiple osteo-ecchondroma. A farmer, aged forty, received a shock from a stroke of lightning when six years old. Nine months afterward, the middle joint of the right index finger began to enlarge, and gradually all of the joints of both hands, except the thumb and little finger of the left, became involved, so that the fingers now have the appearance of medium-sized nodulated potatoes. The largest nodule is on the index finger of the right hand, with a circumference of eleven inches. The right upper and lower extremities are much shortened, owing to the development of bony masses, which deform the bones. On the right external malleolus is an enlargement about the size of a lemon. The toes of the right foot are involved in the same manner as the hands, the left foot being nearly normal. The article is well illustrated, and a careful review of the literature of this condition follows.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—GEORGE H. KIDD, M.D., F.R.C.S.I.

General Secretary—W. THOMSON, F.R.C.S.I.

SECTION OF OBSTETRICS.

President—ANDREW J. HORNE, F.R.C.P.I.

Sectional Secretary—F. W. KIDD, M.D.

Friday, December 22, 1893.

The PRESIDENT in the Chair.

Exhibits.

DR. ALFRED J. SMITH exhibited—1. Tubes and ovaries removed for rapidly growing fibro-myoma accompanied by profuse haemorrhage. On rotating the tumour to get left ovary, the mesentery was bruised. The patient's pulse before operation was 90. Directly after operation it fell to 36, and remained between 36 and 40 for forty-eight hours. The pulse was slow, deliberate, non-compressible, like the slow pulse of digitalis poisoning. He attributed the slow pulse to an inhibition of heart through the crushing of the mesenteric nerves. She made a good recovery.

2. A hydrosalpinx removed from a patient who, eighteen months before, had a severe attack of puerperal blood-poisoning. Her temperature before operation was 100° F. at night. The tumour was covered with very extensive adhesions. The points of interest are—The attack of puerperal fever, the presence of a cystic tube, with temperature of 100°, and still contents of cyst clear serum. Recovery of patient perfect.

DR. W. J. SMYLY exhibited—1. A ruptured tubal pregnancy. The

patient had borne one child, and had a miscarriage—the former about eighteen months, and the latter about ten months previous. For about two months before the accident she complained of pelvic pain, a bearing down sensation, and a constant though moderate red discharge. The rupture was attended by violent pain and repeated faintings. The abdomen was opened four hours later, and the right Fallopian tube, together with the ovary and a large quantity of blood, removed. The specimen consisted of the right Fallopian tube and corresponding ovary, and showed a small crack on the posterior surface of the tube, which was distended to size of a small sausage, about half an inch from the fimbriated extremity.

2. A myoma about as large as a foetal head, which had been embedded for about a quarter of its surface in the fundus of the uterus. The tumour having been enucleated, the cavity left was stitched up from the bottom, and the abdomen closed. The patient made a good recovery.

3. This specimen was a uterus about as large as a foetal head infested with myomata and with cancer of the mucous membrane. The organ was removed by the mixed method. The cervix having been freed per vaginam the entire organ was extracted by abdominal section. The patient recovered.

4. Two tubes removed for pyosalpinx.

Case of Ventral Hernia following Laparotomy.

MR. M'ARDLE read a paper on this subject. [It will be found at page 101.]

DR. W. J. SMYLY said it was his misfortune not to have heard the paper in full. In speaking about ventral hernia, they must distinguish between those which were congenital and acquired, and he was not aware that Mr. M'Ardle referred to the congenital. He himself operated on two cases of that kind by the flap-splitting method of Tait. When a congenital umbilical hernia was cut down on, a very thick ring was found at the edge of the aponeurosis, and it was very easy to split it up with scissors. One could then turn one flap down and the other up, so as to get flat surfaces of aponeurosis opposed to each other. He had two operations of the sort, but, as he had not seen the patients since, he could not speak as to the ultimate result. Hernias that occurred after abdominal section were a great trouble, and brought discredit upon the operation of abdominal section. In order to avoid them one had to make the incision in a certain way and in a certain place, and stitch it with certain precautions. All these certainties were nothing more or less than uncertainties, and if different books were consulted they would see that different men laid emphasis on points totally opposed to each other. He thought it was a matter of importance not to make the incision through the linea alba, but to one side of it, so as to lay open the sheath

of one rectus muscle. Good union would be the result, and especially so in cases where the tissues were stretched by large tumours. The incision should also be as high up in the abdomen as the circumstances of the operation would permit, and the incision itself should be clean-cut and not bruised. He had given up gradually the use of the pressure-clips, and he was struck lately by how little the most successful operators had used them. There were a great many different methods of suturing, but he thought the simplest method the best, especially when the results were equal. The simplest method was Dr. Martin's, and there was fully one and a half or two inches between the sutures, and still no one had better results. He thought suppuration had a great deal to do with the occurrence of hernia after abdominal section. When a wound suppurated granulations sprang up, and the cicatrix atrophied and became thinner, and it was only by the direct union of living tissues that stretching could be avoided. Again, the too frequent use of clips would crush the tissues and make them more liable to tension, and if there was any suppuration in the neighbourhood these parts would infallibly suppurate too.

DR. PARSONS inquired as to the advantages gained by suturing the abdominal wound in layers.

DR. A. J. SMITH said that he had adopted Mr. M'ARDLE's method. He thought that the layer directly over the elastic layer retracted considerably. He thought more attention should be given to the middle stratum than to the peritoneum or skin. In all the hernias that he had seen it was owing to the non-approximation of this stratum. They should examine carefully each suture and see that it went through the stratum, as sometimes the superficial layer retracted.

DR. F. W. KIDD thought it was admitted that often there was damage done to the tissues by the pressure forceps. It would be of interest to him to know what other means were adopted to check haemorrhage from bleeding points.

THE PRESIDENT referred to the greater likelihood of hernia occurring after suppuration in the suture track. He mentioned the case of a patient from whom he removed the appendages, and who, several months afterwards, during an attack of severe bronchitis, suffered from a considerable protrusion. With reference to the operation for umbilical hernia, he remembered a patient from whom he removed an ovarian cyst, and in concluding the operation he removed the sac of a congenital umbilical hernia also. Owing to the dense, firm adhesions the operation was protracted, and the patient fell into a state of collapse, but rallied in about an hour. Three hours after she vomited some black matter and died, and the autopsy showed that a gastric ulcer had given away, while the cicatrices of several other old ones were present.

MR. M'ARDLE said if he had done nothing more than elicit those valuable remarks of Dr. Smyly he would be well repaid for his trouble.

He said flap-splitting was the only operation where the peritoneum was fixed to the ring—it was the only one where they could have material for their sutures. He was glad to hear that the use of clips was lessened considerably, and he did not believe that a great number of sutures were necessary. With reference to Dr. Parson's question, he said the importance of the third layer of sutures was that it leaves no space in which fluid could accumulate.

Colectomy for Adhesion of Caecum.

DR. A. J. SMITH read a paper on colectomy for adhesion of caecum to an old ovarian pedicle and tubercular appendix. [It will be found at page 111.]

DR. W. J. SMYLY thought the method Dr. Smith adopted with regard to the appendix a very neat one. In one case where he removed the appendix he simply pushed in the stump and stitched the peritoneum over it. While in Germany lately he had seen an appendix removed, and the operator simply tied it as if it were an ovarian pedicle, and snipped it off.

MR. M'ARDLE said he believed that in the peculiar movement of the appendix they saw the cause of the spasmoidic pain that the patient suffered from. It was the contractions of it which caused the pain, and there were many cases of intestinal obstruction where attachment of the vermiciform appendix set up either spasmoidic or paralytic obstruction.

DR. PARSONS inquired whether Dr. Smith's statement as to tubercular ulcer of the appendix was made from a naked-eye or a microscopic examination? As far as he was aware tubercular ulcer, confined to the vermiciform appendix, was comparatively rare.

DR. A. J. SMITH, in reply, said he found the method of amputating the appendix exceedingly quick, while it was a very secure method also. He thought the pain was due to these curious contractions of the appendix. In reply to Dr. Parsons, he said he had not yet had time to make a microscopic examination, but in the opinion of experts it was a typical tubercular ulcer, and there was no evidence of any concretion.

Stricture of the Transverse Colon.

DR. DOYLE exhibited a specimen of stricture of transverse portion of colon, and said the specimen was taken from an old lady who had previous attacks of enteritis and gastritis. In June last she suffered from partial intestinal obstruction, and he proposed some operative procedure which would not be carried out. On making a *post-mortem* he found both sides of the stricture distended, showing that it was not completely occluded. At the point of the stricture there was a band going towards the right side. He would account for the symptoms of intestinal obstruction occurring every week, thus—when the contents of the upper portion of the bowel passed into the descending portion, the transverse portion

was weighed down, and so caused greater narrowness of the stricture, with the result that symptoms of intestinal obstruction were set up, and these passed away according as the lower colon was relieved of its contents.

MR. M'ARDLE said he had seen the case in consultation with Dr. Doyle, and at the time he diagnosticated the obstruction as being in the large intestine. He said the tag prevented the passage of the vermicular contractions over that spot; consequently, emptying the bowel was brought about by stimulation of the rectum, which caused contractions of the lower part of the bowel to be set up.

SECTION OF PATHOLOGY.

President—PROF. J. ALFRED SCOTT.

Sectional Secretary—J. B. STORY, F.R.C.S.I.

Friday, January 5, 1894.

The PRESIDENT in the Chair.

Case of Locomotor Ataxy, with Specimen of Charcot's Disease.

DR. NUGENT read a case of locomotor ataxy, with specimen of Charcot's disease :—

An army pensioner, aged forty-nine, admitted to the Whitworth Hospital, December 28th, 1892, complaining of swelling in right knee and general difficulty of walking. No history of syphilis, excess of any sort, or heredity.

About three years before admission symptoms commenced, gradually increasing. Weakness and difficulty in walking—first in left leg, then in right—accompanied by lancinating pains and slight bladder trouble. Later on periodical fits of “choking,” which were laryngeal in character, and which started, as he described, from the pit of his stomach.

Three months before he came under observation he got a fall off a vehicle striking his right knee against the ground, and at that time felt something give. The knee rapidly swelled, but was almost painless. It increased or diminished in size from time to time, and in about six weeks after the accident commenced to bend backwards.

His symptoms while in hospital were briefly these. His voice was impaired from paresis of the adductor muscles of the larynx, and speech thick from apparent deficient tongue movement. Pupils markedly myotic; Argyll Robertson phenomenon well developed; and slight ptosis of both upper eyelids. Severe pains in the stomach and constipation. Frequent micturition, especially at night—urine containing large quantity of pus and sometimes a little blood—and occasionally incontinence. Ordinary

sensation is diminished and distinctly delayed to a smart prick of needle. Slight paræsthesiae such as tingling, &c., and occasionally allocheiria. Knee-jerks are lost, and plantar reflexes diminished.

His gait is considerably modified by the condition of his right knee. He can only progress with extreme difficulty with the aid of two sticks, and when he rested the weight of his body on his right leg, the retroflexion of his right knee was so great as to cause apprehension lest the condyles of his femur, which projected strongly backwards, should burst through the skin. The knee in circumference measured 4 or 5 inches more than that of the opposite side, and this increase, due chiefly to fluid effusion, would considerably subside after some days' rest in bed. The veins over the joint were considerably distended, and the ends of tibia and fibula could be felt to be enlarged. The patient ultimately sank from urinary complications, and died in April, 1893. The autopsy revealed the following condition of the knee-joint :—

The muscles in the neighbourhood of the joint are well developed. Capsule greatly thickened, especially on either side of the ligamentum patella. External lateral ligament thickened; internal, normal in appearance. On the joint being opened the synovial membrane is found to be much thickened, both the part covering the non-articular surface of the bone and that lining the capsule. Numerous small bands pass across at the angle of reflexion. Small pedunculated bodies, hard to the touch, project into the joint cavity. Near the patella the membrane is roughened, and has a warty appearance. The lower end of the femur is greatly enlarged, the cartilage covering the articular portion eroded in parts, and eburnated bone shines through.

The margin of the articular surface above projects abruptly, is irregular and lipped, and overhangs the non-articular surface of the femur. On looking at the posterior surface of the joint large synovial fringes overlap the condyles, the cartilage is eroded in parts, and in other places elastic elevations project from it; irregular bony outgrowths are found along the upper part of condyles. The patella is transversely enlarged, slightly diminished in size from above downwards; its cartilage is partially eroded, and a bony lip of the same character as that on the femur projects from its upper border.

The lip of the tibia is enlarged; the cartilage on the upper surface is eroded in a similar manner to that on the femur, and bony outgrowths appear between the tuberosities. The anterior crucial ligament has disappeared, the posterior also to a great extent, and the femur can with ease be luxated backwards to a very considerable degree. The semilunar cartilages appear to be intact.

The spinal cord, examined by Dr. Alfred Scott, presented the usual appearances found in locomotor ataxy. The posterior columns in all parts are degenerated. In the cervical and dorsal regions the postero-

internal columns are in an extreme condition of degeneration, while the postero-external columns are less so. In the lumbar regions both columns are equally degenerated, but not so much as the postero-internal columns higher up.

The cells in the anterior cornua of grey matter stain badly, and many of the cells in those parts throughout the cord are pigmented and granular.

There does not appear to be any degeneration in the cerebellar tract or elsewhere, except as mentioned above.

MR. CHANCE asked could Charcot's disease of the joints exist without there being any nervous symptoms? In a case he operated upon his patient had a large swelling of her right shoulder. There was no pain, no redness, no increased heat to be felt. It was suggested that the case might be a sarcoma or some slow inflammatory condition. Movement was free, except for the mechanical interference presented by the large swelling. On the joint being opened, about half a pint of clear yellow fluid was found; the glenoid cavity was deprived of cartilage, and the head of the humerus was greatly destroyed. The joint was closed, and two years later the woman had perfect movement in it. She had no tabetic symptoms.

DR. NIXON asked what was the condition of the knee joint of the other limb. The displacement in this case was interesting. In two other cases he had seen the displacement was in an outward direction, and both limbs were affected, one more than the other.

DR. O'CARROLL asked might the condition of the joint be due to a neuritis descending from the spinal cord? Might the perforating ulcer of the foot, and the skin atrophy also, be due to the same cause? Do these conditions occur at the neuritis stage?

DR. DOYLE said that in some cases of chronic rheumatic arthritis, which he had seen, there was more eburnation of the bones. A greater number of joints were affected as well.

DR. NUGENT, in reply, stated that as regards Mr. Chance's question he was unable to give a satisfactory answer. Similar cases had been brought before the Clinical Society of London, and no definite opinion had been arrived at. Many observers asserted that chronic rheumatic arthritis and Charcot's disease of the joints were the same. Charcot himself admitted that a tabetic patient might be attacked with chronic rheumatic arthritis, and that if he was you could not distinguish the two.

In reply to Dr. Nixon, he stated that during life the left knee appeared perfectly normal. It was not examined after death. If his patient had lived longer, the articular ends of the bones of the right knee might have gone on to absorption.

Stricture of the Colon.

DR. DOYLE exhibited a specimen. The Section then adjourned.

SECTION OF SURGERY.

President—EDWARD HAMILTON, President of the Royal College of Surgeons in Ireland.

Sectional Secretary—KENDAL FRANKS, F.R.C.S.I.

Friday, January 12, 1894.

SIR W. STOKES in the Chair.

Fibrous Stricture of the Oesophagus treated by Gastro-tomy and Dilatation from below.

MR. KENDAL FRANKS read a paper on “Fibrous Stricture of the Oesophagus treated by Gastro-tomy and Dilatation from below.”

The patient, a young lady, aged twenty-four, had suffered from dysphagia ever since she had had scarlatina, when seven years of age. Symptoms had during past two years been progressively worse, and she was reduced from 8 stones to 5½ stones in last 12 months. Bougies introduced showed a practically impermeable stricture 3 inches above cardiac orifice. On July 6th, 1892, abdomen was opened in middle line from xiphoid cartilage downwards. The stomach, very contracted, was opened for about an inch, cleaned out, and the finger introduced. The stricture was found 3 inches above cardia. Otis' dilating urethrotome, without the blade, was passed along the finger through the stricture, and the stricture was dilated first antero-posteriorly and then laterally. A bougie passed through the mouth emerged in the stomach, and by its means strong silk drawn up the oesophagus to the mouth. A plug of gauze tied to this, with another silk ligature at the other end, was drawn backwards and forwards through the stricture, and was finally left in the stricture, the lower ligature being cut off. The stomach was immediately closed, returned to abdomen, and the external wound sutured. The plug was withdrawn in six hours. The patient made an uninterrupted recovery, and was able to go out on the 21st day. Two months later the stricture readily admitted a medium-sized bougie. Dilatation, supplemented by electrolysis, was carried on subsequently at intervals. The patient, 18 months after operation, was in perfect health, and had increased in weight from 5½ to 8½ stones.

The author exhibited a table he had prepared of all the cases hitherto published which he could find; they numbered 21. Eight of these had been done by the immediate method, same as the case recorded. In the remainder a gastric fistula had been first established, and subsequently, from one to four months, retrograde dilatation of the oesophagus, either by Hagenbach's or some other method, had been carried out.

The author argued in favour of the immediate method in all cases of impermeable fibrous stricture, except after extensive injuries involving a great length of the tube, when immediate dilatation would be impracticable.

The operation was devised and first performed by Loreta of Bologna, in October, 1883.

SIR W. STOKES said there were many points of surgical interest and importance in this paper. There were three to which he might direct attention. The first of these was as to the relative merits of gastrotomy or gastrostomy in cases where the retrograde dilatation was to be performed. He gathered that Mr. Franks was in favour altogether of gastrotomy, and he was inclined to agree with him, because, where dilatation was to be performed, there were much greater facilities by performing gastrotomy than where they would have to work their way through a comparatively small fistulous opening in the stomach. Then again, in cases where gastric fistula is established there was always great difficulty in getting it to heal. The next point that occurred to him—and he hoped Mr. Franks would not think he was going to throw any doubt upon the accuracy of his diagnosis—was, that it struck him as being very remarkable, if this was a case of fibrous stricture of the oesophagus of nearly over 17 years' standing, that it should be so very amenable to the treatment of dilatation, and in that respect differing so much from what they knew by experience to occur in cases of stricture of other organs, particularly that of the rectum and urethra. Here they had a case of great chronicity, and on the 21st day after operation the patient was perfectly well. It was very exceptional, assuming it was a fibrous stricture, and he would like to hear Mr. Franks in reference to the possibility of its being a spasmodic closure of the oesophagus. This condition was by no means infrequent in persons of a neurotic tendency. And bearing on this subject, he mentioned the case of a man, aged forty-five, who was admitted into the Meath Hospital three months ago, suffering from acute pain in the right hypochondriac region, and which came on in paroxysms. On examination they found a distinct tumour, ovoid in shape, freely movable and smooth on the surface. He exhibited the case in the Biological Club, and very different opinions were expressed concerning the tumour, but all agreed that laparotomy should be done. He performed laparotomy, and made a careful examination of the contents of the abdomen, but no tumour could be found, and in fact everything appeared perfectly normal. The patient got well without any febrile disturbance; there was no recurrence of the tumour, and the paroxysmal pain has vanished. It occurred to him as to whether there was not a neurosis in a large number of these cases, having regard to the extreme amenability to the treatment and the immediate results that occurred after operation. There was one other point he would wish to

allude to, and that was to the operation of oesophagotomy in cases where the stricture occurred close to the cardiac end. And although the operation required a considerable degree of anatomical skill, still the dangers of the operation were not so great as in gastrotomy. By opening the oesophagus low down they would have as much facilities for dilatation as through the stomach. He merely threw out the suggestion, and he would like to have Mr. Franks' opinion on the point.

MR. T. MYLES thought there was nothing more difficult than to arrive at a correct diagnosis regarding obstructions in the oesophagus. The most experienced surgeons had erred in these intra-thoracic obstructions, and even allowing that the diagnosis is made, they had then to learn whether the obstruction was benign or malignant. He also thought the relations of the oesophagus to the diaphragm very important, and in many cases stricture of the oesophagus, close to the cardiac end, was due to some interference with the normal physiological opening in the diaphragm. Many of those cases which were cured by electricity and bougies, were merely strictures comparable to the "stammering" of the bladder in retention of urine. Another point of importance was the height to which the diaphragm ascends. In his own case the stricture was barely within reach of his finger when placed in the stomach, so that digital dilatation is only applicable to cases very low down. He believed Mr. Franks' case to be one of *bond fide* stricture successfully treated. He submitted that owing to the proximity of great vessels and nerves to the oesophagus, and to the fact that an instrument must form an acute angle with the oesophagus, the dangers of oesophagotomy were much greater than those of gastrotomy. In his own case he had little doubt that the stricture was malignant, and he believed that his patient died of inanition. He failed to see any analogy in stricture of the urethra, because in the latter case they had a canal composed of unyielding structures, and subject to the passage of irritating matters.

MR. F. A. NIXON thought that the dilator should not be used as long as the finger could reach the stricture. He found from examinations on the dead subject as well as from Mr. Myles case, that when the hand is passed into the stomach with the finger in the oesophagus, the cardiac auricle rested in the palm of the hand, and very slight pressure would cause it to perforate the oesophagus and wound the auricle. He thought the operation of gastrotomy much more simple than opening the oesophagus.

MR. TOBIN said that among the various measures enumerated for the cure of the stricture, no mention had been made of leaving in a tube for a considerable length of time with a view of bringing about gradual enlargement of the stricture. He thought the passing of the threads through the oesophagus, and into the opening in the stomach, a very admirable method; but if a full-sized instrument occupied the place of

the thread its pressure might bring about absorption, just as occurred in urethral stricture. The operation, as suggested by Mr. Franks, seemed to him to possess great advantages, because, even if they failed to get the stricture dilated they would still have means left of getting food into the stomach, which would not exist where cesophagotomy was performed. In the cases of cesophagotomy that he had to deal with he had always great difficulty on the question of drainage. He did not know of any wound more difficult to keep aseptic, because the pus was very difficult to drain, and the sterno-mastoid usually fell over the opening. If only for these reasons he always preferred the operation of gastrotomy.

MR. WHEELER said he could not agree with Mr. Myles as to the difficulty or danger of cesophagotomy. He performed the operation on four different occasions, and he avoided all the vessels which Mr. Myles dreaded so much. He thought the best method of keeping the wound aseptic was to drain with catgut. The question to his mind was, whether they could dilate a stricture 3 inches from the stomach by opening the cesophagus through the neck.

MR. MYLES wished it to be understood that he used the word *difficult* in a relative sense, and of course they would not meet with such large blood vessels in opening into the stomach as they would in cesophagotomy.

MR. MCARDLE said that in performing the operation of cesophagotomy, he had no difficulty, but he had a good deal in guiding a bougie through the stricture. He opened it high up on account of cellulitis having occurred where the opening in the cesophagus originally occurred. In dilating the cesophagus, he found it easier to work from the mouth—and why perform the operation when they had a natural opening above?

MR. KENDAL FRANKS, in reply, tendered his sincere thanks for the kind manner in which his paper had been received. His paper did not deal with the question of cesophagotomy, but he thought it was quite proper to discuss whether cesophagotomy might not possibly be a better method than gastrotomy. He was quite well aware that Dr. Grazer, of Erlangen, maintains that it is much easier to reach the stricture through an opening in the cesophagus than through the mouth, and that the bougie can be passed with much greater ease. His (Mr. Franks') great objection to cesophagotomy, as compared with gastrotomy in cases of almost impermeable stricture, was the difficulty of finding the small opening from above. They might sometimes as well look for a "needle in a bundle of straw" as find the small opening from above. But when dealing from below, it was comparatively easy to pass the bougie, because they had not a dilated cesophagus to deal with. In reference to Sir William Stokes' case in the Meath Hospital, he considered it was a case similar to those described by Mr. Mayo Robson, of adhesions within the abdomen, the result of some previous inflammatory process. In exploring the abdomen, these adhesions became freed, and the pain

subsequently disappeared entirely. He could not look upon such cases as purely neurotic. In the case of stricture he had reported, there could be no doubt whatever as to the diagnosis. During anaesthesia, in the course of the operation, the stricture was carefully explored with the finger. He considered that spasmodic stricture of the oesophagus was much more uncommon than fibrous stricture. By examination with bougies he did not think it was likely that a spasmodic stricture could very easily be mistaken for an organic obstruction, but he had frequently found in cases of fibrous stricture the diagnosis of spasm or hysteria made, which simply meant that the patient was left untreated for months or years.

Some Interesting Cases of Gunshot Wounds.

MR. AUSTIN MELDON read a paper on "Some Interesting Cases of Gunshot Wounds."

A boy was accidentally shot, the bullet entering the abdomen to the right of the sternum at the lower end. Peritonitis and escape of bile followed. The fistula closed, and he was discharged in a month.

A woman was shot in four places. One bullet passed through the muscles of the right arm: the second lodged in the wrist; the third entered between umbilicus and spine, and was removed from the groin; the fourth entered to the right of the sternum, passed through the lung, and was found in the muscle on the left side. She recovered.

In the next case a man accidentally shot himself. The bullet entered on the right side of the thorax above the nipple, and passed into the lung. He recovered.

MR. MYLES mentioned the case of a young policeman who was shot in the right side of the neck under the sterno-mastoid, and the wound healed perfectly. He had torticollis, and as they thought he was malingering they put him under chloroform, and the spasm disappeared, but subsequently reappeared. He also got paralysis of the right arm, and all the time confidently asserted that the bullet was in his neck. His view was the correct one, for the bullet was extracted a considerable number of years after by another surgeon. Another case was that of a man struck in the thigh, and the bullet ran in the line of his femoral artery. He suffered from no pain or trouble, and the wound healed up with the bullet still in the leg. He also mentioned the case of a man who shot himself through the mouth. The bullet lodged in the base of the brain after shattering the sphenoid, and a lot of brain matter came away, death following soon after.

MR. TWEEDY mentioned the case of a young man who shot himself while in the park, and subsequently walked to the hospital. There was a hole below the right nipple and a lump on the side of the spine, indicating where, as they thought, the bullet was. He died of peritonitis, and

it was found that the bullet had gone through both walls of the stomach.

MR. TOBIN said that no one could show a better record than that of Mr. Meldon.

MR. WHEELER mentioned a case of a young man shot below the ensiform cartilage who recovered. He was also called to a case in Kilkenny, where an officer was shot through the temporal region, and the bullet lodged in the brain. He had no symptoms save that he could not speak, and that there were some slight twitchings of the face. He passed a probe and hit the bullet, but refused to operate on account of the absence of symptoms. The patient was now quite well. He next referred to a gamekeeper who shot himself with a revolver on the side of the neck. He got aphasia and paralysis of the right arm and leg. There was no aperture of exit, so he adopted no treatment, and the man got gradually well. His next case was one in which a man shot himself in the gluteal region, and the bullet travelled round towards the great trochanter. He removed it along with the anterior and external portion of the femur. His next case was a penetrating wound of the lung, and whenever the person spoke a hissing noise could be heard at the back of the lung.

MR. F. A. NIXON mentioned the case of a young man brought into hospital suffering from a very slight wound in the foot, with some discolouration. He was walking in a procession, and thought that somebody must have trod on his foot. The wound was dressed, and subsequently an abscess formed. At the bottom of it they found a revolver bullet.

MR. WHEELER also referred to a bullet found in the pericardium of a man who died in Baggot-street Hospital. He received it at the battle of Salamanca.

MR. KENDAL FRANKS mentioned the case of an American who came to him some years ago to have a bullet removed from the frontal sinus. He had apparently attempted to commit suicide by holding a revolver beneath the jaw and firing upwards—that was about two months previously. The track of the bullet was manifest. It had gone through the tongue, through the hard palate, up through the left nostril, and entered the left frontal sinus. The point of the bullet had impinged on the edge of some bone, because it was found split, and the bullet had turned completely round so that its apex was downwards.

The Section then adjourned.

SECTION OF MEDICINE.

President—WALTER G. SMITH, M.D., President of the Royal College of Physicians of Ireland.

Sectional Secretary—A. N. MONTGOMERY, M.R.C.P.I.

Friday, January 19, 1894.

The PRESIDENT in the Chair.

Cancrum Oris in Typhoid Fever.

DR. H. T. BEWLEY described the case of a boy, aged fourteen years, who was attacked very severely by typhoid fever. On the 41st day of the disease a black patch was noticed inside the right cheek, and two days after another black patch was observed inside the left cheek. The latter soon healed, but the former was accompanied by much hardness and swelling of the cheek, and increased till it involved the skin. Then the gangrene ceased to spread and the slough rapidly separated. The boy during this process was very weak, but was given large quantities of nourishment and stimulants—12 ozs. of whisky every 24 hours for 10 days—and seemed to derive much benefit therefrom. The slough was very large, and when it came away left an opening through the cheek of the size of a shilling, and a large cavity inside the cheek extending from near the angle of the lips to the ascending ramus of the jaw. The boy, however, made a good recovery, and the opening through the cheek closed completely in about six weeks. No contraction has yet occurred in the tissues. The stench, which had been very bad, Dr. Bewley thought, was most successfully kept down with local application of creolin and of eucalyptus oil.

Dr. Bewley called attention to the rarity of cancrum oris in typhoid fever, to the high mortality which occurs in it, and to the fact that this case did extremely well without any surgical interference.

DR. POLLOCK mentioned a case of typhoid in which he had seen inflammation and sloughing of an entire sub-maxillary gland.

DR. J. W. MOORE said that during 13 years' experience as visiting physician at Cork-street Fever Hospital he had seen only four cases of cancrum oris—two following measles and two following typhus. Murchison, in an experience of 5,800 cases of typhoid fever, had seen it occur in it only once. Dr. Moore recommended that the mouth should be rendered as aseptic as possible and kept so. The teeth might be cleansed with a paste composed of eucalyptus oil, liquefied carbolic acid and precipitated chalk, and the mouth might then be rinsed out with an antiseptic fluid.

MR. DOYLE said he had treated two cases of cancrum oris last year.

He did not know whether they were recovering from fever, but he found them on admission to hospital with very decayed teeth. These he extracted and applied to the gangrenous surface in one of the cases hydrochloric acid and in the other nitric acid. The subsequent treatment consisted in cleansing the mouth with a large throat brush and spraying the cavity of the mouth. He also sprayed the interior of the nose and the back of the throat. As medicine he gave small doses of tr. opii and found them very beneficial.

DR. FINNY said he had only seen the teeth and gums affected by extension from the cheek. He pointed out that the disease always began in the cheek opposite the first molar tooth.

DR. BOYD narrated an account of the treatment pursued in one of the children's hospitals in New York, where an epidemic of cancrum oris broke out. There were 40 cases, and the mortality was only 4 or 5. Subnitrate of bismuth was applied locally. He remarked that the disease had become much less frequent since mercury had been less freely used. He thought that the extensive ulceration in the bowel in typhoid fever allowed of the absorption of the poisonous products of bacteria present in the contents of the intestines. This might have something to do with the extensive suppuration which occurred in Dr. Bewley's case.

DR. LITTLE drew attention to the benefit resulting from the administration of stimulants in this case. He considered that the whole question of stimulants required revision. In some cases patients get well in which they are freely given, but they would have done better without them, while in others they would have died if they had not got them. He had seen alcohol do good in cases of pyæmia and septicæmia.

DR. DAWSON mentioned a case of a boy of six years recovering from measles, who was well nourished, but was attacked with cancrum oris first in the left cheek and then in the right. The greater part of his left cheek was destroyed, and a portion of the alveolar process of the jaw exposed. His right cheek was perforated with a hole of about the size of a sixpence. The child recovered; the hole in his right cheek was obliterated; and the opening in the left cheek was much diminished without any operative interference. To allay the foul odour dilute sulphurous acid was sprayed into the mouth.

DR. DAVIS suggested that the opening of the parotid duct being situated near the position at which the ulcerations usually occurred, it was possible that it might afford a nidus for micro-organisms.

THE PRESIDENT said that the local complications occurring in the mouth in acute fever were of three sorts:—1. Severe ulceration. 2. Acute periostitis. 3. The gangrenous inflammation styled "cancrum oris." Dr. Bewley's case was interesting in that it attacked an older patient than is usual, and that the disease occurred after typhoid fever. In favour of there being a specific cause for the disease we have—

(1) its rarity, (2) the definite symptoms and signs, and (3) the constancy of the appearances presented. The foul smell is not a constant factor. In a case lately treated in Sir P. Dun's Hospital there was absolutely no odour. It is a matter of note the quantity of stimulants taken by this boy in a short time. Alcohol, as it is oxidised into carbonic acid and water, is capable of being a source of energy to the body and thus a good—using this word in its widest sense. When more than a certain quantity is taken, part of it circulates unchanged in the body and is excreted as such. To this portion present in the tissues as alcohol might be referred—(1) its antipyretic properties, (2) its antiseptic properties, and (3) its action on the leucocytes.

DR. BEWLEY, in reply, stated that this boy had a very considerable quantity of opium throughout his whole illness. His teeth were not at all affected. He could give no reason why the disease began opposite the first molar tooth. He thought the opening of the parotid duct had nothing to do with it, because in his case the duct was not opened, and no salivary fistula resulted. As regards the stench, it came from the dead slough, and when it was removed the stench ceased.

Case of Associated Paralysis of the Right Portio Dura and Pneumogastric Nerves.

DR. J. W. MOORE read the notes of this case. [They will be found at page 315.]

DR. PARSONS wished to ask what was the condition of the patient's tasting powers. Could the paralysis of the 7th be a mere coincidence. It was very odd that the 6th nerve was not affected if the patient suffered from basal meningitis, considering the frequency with which it is affected. As regards the path by which sensory impulses of taste reached the brain, physiologists and clinical physicians were not yet agreed.

DR. R. A. HAYES considered that it was pretty evident that there was an empyema of the sphenoidal air sinus. The pus, however, found free exit and did not produce pressure symptoms. An extension of inflammation by continuity of tissue, remembering the great thinness of part of the wall of the sinus, might account in the main for the symptoms.

DR. DAVIS thought that the nerve affected might have been the accessory portion of the spinal accessory.

DR. FINNY thought that the simplest explanation was an abscess in the upper posterior part of the pharynx, and that it engaged the 7th nerve close to its exit from the stylo-mastoid foramen.

DR. J. W. MOORE, in reply, stated that both the motor and taste functions of the patient's tongue were perfect. There was no ear lesion and no hyperacuteness of hearing. As regards Dr. Finny's view, it does not seem to fully account for the first four days of the illness when the patient suffered from giddiness, vomiting, and severe pain in her head.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, B.A., M.D., Univ. Dubl.; F.R.C.P.I.;
F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

VITAL STATISTICS

For four Weeks ending Saturday, March 24, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

TOWNS	Weeks ending				TOWNS	Weeks ending			
	Mar. 3	Mar. 10	Mar. 17	Mar. 24		Mar. 3	Mar. 10	Mar. 17	Mar. 24
Armagh -	35·1	28·0	28·0	14·0	Limerick -	23·9	32·3	26·7	9·8
Belfast -	28·7	31·2	29·6	26·9	Lisburn -	12·8	17·0	12·8	29·8
Cork -	28·4	30·5	23·5	27·0	Londonderry	15·7	12·6	9·4	23·6
Drogheda	30·7	13·2	17·6	22·0	Lurgan -	18·2	18·7	36·5	4·6
Dublin -	29·2	28·9	24·5	28·8	Newry -	8·1	28·2	28·2	16·1
Dundalk -	8·4	12·6	16·8	50·8	Sligo -	5·1	5·1	40·6	20·3
Galway -	49·1	34·0	26·4	15·1	Waterford -	25·0	10·0	12·5	32·5
Kilkenny	28·3	14·2	23·6	4·7	Wexford -	36·1	31·6	22·6	13·5

In the week ending Saturday, March 3, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 21·0), was equal to an average annual death-rate of 20·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·6 per 1,000. In Glasgow the rate was 19·1, and in Edinburgh it was 17·3.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 27·4 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·1 per 1,000, the rates varying from 0·0 in eleven of the districts to 6·8 in Belfast—the 148 deaths from all causes registered in that district comprising 12 from measles (being an increase

of 5 as compared with the number for the preceding week), 12 from whooping-cough (against 6 for the preceding week), 2 from diphtheria, 4 from enteric fever, and 5 from diarrhoea. Among the 41 deaths in Cork are 1 from enteric fever and 1 from diarrhoea. The 17 deaths in Limerick comprise one from typhus.

In the Dublin Registration District the registered births amounted to 281—110 boys and 121 girls; and the registered deaths to 202—83 males and 119 females.

The deaths, which are 3 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·1 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 29·2 per 1,000. During the first nine weeks of the current year the death-rate averaged 32·5, and was 0·1 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 25, being equal to the number for the preceding week, and 3 in excess of the average for the ninth week of the last ten years. The 25 deaths comprise 2 from measles, 1 from typhus, 6 from influenza and its complications, 7 from whooping-cough, 3 from enteric fever, 1 from diarrhoea, and 1 from erysipelas.

Nine cases of enteric fever were admitted to hospital, being 2 over the admissions for the preceding week, but 1 under the number for the week ended February 17. Ten enteric fever patients were discharged, 2 died, and 50 remained under treatment on Saturday, being 3 under the number in hospital on Saturday, February 24.

The number of cases of scarlatina admitted to hospital was 15, being a decline of 3 as compared with the admissions for the preceding week. Eight patients were discharged, and 73 remained under treatment on Saturday, being 7 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 16 cases of measles (against 7 for the preceding week), but no cases of typhus were admitted: 30 cases of measles and 3 of typhus remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had risen from 58 for the week ending February 17, to 62 for the following week, fell to 41, or 6 below the average for the corresponding week of the last ten years. The 41 deaths comprise 25 from bronchitis and 12 from pneumonia or inflammation of the lungs.

In the week ending Saturday, March 10, the mortality in thirty-three large English towns, including London (in which the rate was 20·4), was equal to an average annual death-rate of 19·9 per 1,000 persons

living. The average rate for eight principal towns of Scotland was 21·1 per 1,000. In Glasgow the rate was 22·4, and in Edinburgh it was 18·3.

The average annual death-rate in the sixteen principal town districts of Ireland was 27·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in ten of the districts to 5·2 in Belfast—the 161 deaths from all causes registered in that district comprising 12 from measles (being equal to the number for the preceding week), 8 from whooping-cough (being 4 under the number for the preceding week), 1 from enteric fever, and 6 from diarrhoea. Among the 44 deaths in Cork are 1 from typhus, 2 from enteric fever, and 1 from diarrhoea. The 23 deaths in Limerick comprise 1 from typhus and 1 from diarrhoea.

In the Dublin Registration District the registered births amounted to 178—99 boys and 79 girls; and the registered deaths to 204—100 males and 104 females.

The deaths, which are 11 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·4 in every 1,000 of the population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the district, the rate was 28·9 per 1,000. During the first ten weeks of the current year the death-rate averaged 32·3, and was 0·3 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 22, being equal to the average for the corresponding week of the last ten years, but 3 under the number for the week ended March 3. The 22 deaths comprise 1 from measles, 1 from scarlet fever (scarlatina), 5 from influenza and its complications, 6 from whooping-cough, 3 from enteric fever and 2 from diarrhoea.

Only 2 cases of enteric fever were admitted to hospital, being 7 under the admissions for the preceding week, and 5 under the number for the week ended February 24. Eleven enteric fever patients were discharged, 1 died, and 40 remained under treatment on Saturday, being 10 under the number in hospital on Saturday, March 3.

Seventeen cases of scarlatina were admitted to hospital, being an increase of 2 as compared with the admissions for the preceding week. Twelve patients were discharged, 2 died, and 76 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 11 cases of measles (being a decrease of 5 as compared with the admissions for the preceding week), and 2 of typhus: 35 cases of measles and 4 of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered

is 45, being 4 over the number for the preceding week, but 7 below the average for the tenth week of the last ten years. The 45 deaths comprise 30 from bronchitis and 9 from pneumonia or inflammation of the lungs.

In the week ending Saturday, March 17, the mortality in thirty-three large English towns, including London (in which the rate was 19.3), was equal to an average annual death-rate of 19.2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21.0 per 1,000. In Glasgow the rate was 22.9, and in Edinburgh it was 19.8.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 25.2 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2.4 per 1,000, the rates varying from 0.0 in seven of the districts to 5.1 in Sligo—the 8 deaths from all causes registered in that district comprising 1 from typhus. Among the 153 deaths from all causes registered in Belfast are 11 from measles (being 1 under the number for the preceding week), 7 from whooping-cough (also one under the number for the preceding week), 3 from diphtheria, 3 from enteric fever, and 1 from diarrhoea. The 34 deaths in Cork comprise 1 from each of the following diseases, viz.—Measles, enteric fever, and diarrhoea. The Registrar of Belfast No 9 District remarks:—“There have been some cases of typhoid, several of which were of a very severe character.”

In the Dublin Registration District the registered births amounted to 187—88 boys and 99 girls; and the registered deaths to 173—81 males and 92 females.

The deaths, which are 35 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25.8 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the district, the rate was 24.5 per 1,000. During the first eleven weeks of the current year the death-rate averaged 31.7, and was 0.7 under the mean rate in the corresponding period of the ten years 1884-1893.

The number of deaths from zymotic diseases registered, was 20, being 2 under the number for the preceding week and 1 under the average for the eleventh week of the last ten years. The 20 deaths comprise 1 from measles, 8 from influenza and its complications, 5 from whooping-cough, 2 from enteric fever, and 1 from dysentery.

Six cases of enteric fever were admitted to hospital, being 4 over the admissions for the preceding week, but 3 under the number for the week ended March 3. Seven enteric fever patients were discharged, and 39 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital during the week was 10, being a decrease of 7 as compared with the admissions for the preceding week. Fourteen patients were discharged, and 72 remained under treatment on Saturday, being 4 under the number in hospital on Saturday, March 10.

Only 2 cases of measles were admitted to hospital, being a decrease of 9 as compared with the admissions for the preceding week and 14 under the number for the week ended March 3. Eleven patients were discharged, and 26 cases of the disease remained under treatment in hospital on Saturday.

The hospital admissions for the week included, also, 1 case of typhus: 4 cases of this disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 44, being 1 under the number for the preceding week and 4 below the average for the eleventh week of the last ten years. The 44 deaths comprise 29 from bronchitis and 14 from pneumonia or inflammation of the lungs.

In the week ending Saturday, March 24, the mortality in thirty-three large English towns, including London (in which the rate was 20·3), was equal to an average annual death-rate of 19·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·7 per 1,000. In Glasgow the rate was 20·1, and in Edinburgh it was 17·3.

The average annual death-rate in the sixteen principal town districts of Ireland was 26·0 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 3·4 per 1,000, the rates varying from 0·0 in ten of the districts to 7·2 in Belfast—the 139 deaths from all causes registered in that district comprising 22 from measles (being 11 over the number for the preceding week), 2 from typhus, 7 from whooping-cough, 5 from enteric fever, and 1 from diarrhoea. Among the 15 deaths from all causes registered in Londonderry are 2 from diphtheria; and the 13 deaths in Waterford comprise 2 from scarlatina. The Assistant-Registrar of Cork No. 5 District reports the prevalence of measles.

In the Dublin Registration District the registered births amounted to 161—81 boys and 80 girls; and the registered deaths to 197—88 males and 109 females.

The deaths, which are 17 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 29·4 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 28·8 per 1,000. During the first twelve weeks of

the current year the death-rate averaged 31.5, and was 0.9 under the mean rate for the corresponding period of the ten years 1884-1893.

Twenty-eight deaths from zymotic diseases were registered, being 8 over the number for the preceding week, and 6 in excess of the average for the twelfth week of the last ten years. The 28 deaths comprise 3 from measles, 5 from scarlet fever (scarlatina), 4 from influenza and its complications, 3 from whooping-cough, 1 from diphtheria, 1 from enteric fever, 2 from diarrhoea, and 1 from dysentery.

Ten cases of enteric fever were admitted to hospital, being 4 over the admissions for the preceding week. Six enteric fever patients were discharged, and 4 remained under treatment on Saturday, being 4 over the number in hospital at the close of the preceding week.

Twelve cases of scarlatina were admitted to hospital, being an increase of 2 as compared with the admissions for the preceding week, but 5 under the number for the week ended March 10. Seven patients were discharged, 2 died, and 7 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 1 cases of measles and 1 of typhus : 19 cases of the former and 5 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 57, being 13 over the number for the week ended March 17, and 8 over the average for the twelfth week of the last ten years. The 57 deaths comprise 42 from bronchitis, 10 from pneumonia or inflammation of the lungs, and 2 from croup.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of March, 1894.

Mean Height of Barometer,	-	-	-	29.896 inches.
Maximal Height of Barometer (on 23rd, at 9 a.m.),	-		30.434	„
Minimal Height of Barometer (on 13th, at 7 a.m.),	-		29.096	„
Mean Dry-bulb Temperature,	-	-	-	43.8°.
Mean Wet-bulb Temperature,	-	-	-	41.5°
Mean Dew-point Temperature,	-	-	-	38.8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-		·236	inch.
Mean Humidity,	-	-	-	83.2 per cent.
Highest Temperature in Shade (on 29th),	-		-	63.6°.
Lowest Temperature in Shade (on 17th),	-		-	31.8°.
Lowest Temperature on Grass (Radiation) (on 17th)	-		28.1°.	
Mean Amount of Cloud,	-	-	-	32.3 per cent.
Rainfall (on 14 days),	-	-	-	1.287 inches.
Greatest Daily Rainfall (on 12th),	-		-	·268 inch.
General Directions of Wind,	-	-	-	W., S.W., E.

Remarks.

March, 1894, was a month of surprises. Until the 15th the weather was unsettled, stormy and showery; after that date absolute drought occurred, lasting until the close of the month. During this period the sky was for the most part unusually free from cloud, hot sunshine prevailed by day, while the nights were clear and sharp, and, indeed, often frosty. The mean amount of cloud throughout amounted to only 32 per cent.

In Dublin the arithmetical mean temperature ($45\cdot4^{\circ}$) was considerably above the average ($43\cdot1^{\circ}$); the mean dry bulb readings at 9 a.m. and 9 p.m. were $43\cdot8^{\circ}$. In the twenty-nine years ending with 1893, March was coldest in 1867 and 1883 (M. T. = $39\cdot0^{\circ}$), and warmest in 1893 (M. T. = $48\cdot1^{\circ}$) and in 1868 (M. T. = $47\cdot3^{\circ}$). In 1876 the M. T. was $41\cdot1^{\circ}$, in 1879 (the "cold year") it was $42\cdot5^{\circ}$. In 1888 it was as low as $39\cdot8^{\circ}$; in 1889 it was $44\cdot0^{\circ}$, and in 1890 it was as high as $45\cdot1^{\circ}$. In 1891 it was only $41\cdot7^{\circ}$; and in 1892 it was as low as $39\cdot1^{\circ}$. As a general rule, February in Dublin is only a shade colder than March. This is due to the fact that the Continental anticyclone usually embraces the British Isles and Scandinavia in March, causing easterly winds. In 1892 February was actually $2\cdot2^{\circ}$ warmer than March, and in the present year March was only $0\cdot5^{\circ}$ warmer than February.

The mean height of the barometer was $29\cdot896$ inches, or $0\cdot020$ inch below the corrected average value for March—namely, $29\cdot916$ inches. The mercury rose to $30\cdot434$ inches at 9 a.m. of the 23rd, having fallen to $29\cdot096$ inches at 7 a.m. of the 13th. The observed range of atmospherical pressure was, therefore, $1\cdot338$ inches—that is, more than an inch and three-tenths.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was $43\cdot8^{\circ}$, or only $0\cdot1^{\circ}$ above the value for February, 1894. Using the formula, *Mean Temp. = Min. + (max. - min. × .485)*, the M. T. becomes $45\cdot1^{\circ}$. The arithmetical mean of the maximal and minimal readings was $45\cdot4^{\circ}$, compared with a twenty-five years' average of $43\cdot1^{\circ}$. On the 29th the thermometer in the screen rose to $63\cdot6^{\circ}$ —wind, E.; on the 17th the temperature fell to $31\cdot8^{\circ}$ —wind, E.S.E. The minimum on the grass was $28\cdot1^{\circ}$, also on the 17th.

The rainfall was $1\cdot287$ inches, distributed over 14 days. The average rainfall for March in the twenty-five years, 1865–89, inclusive, was $2\cdot061$ inches, and the average number of rainy days was $16\cdot5$. The rainfall, therefore, was much below the average, while the rainy days were also to a less extent below it. In 1867 the rainfall in March was very large— $4\cdot972$ inches on 22 days; in 1888, $3\cdot753$ inches fell on 18 days; in 1866 also $3\cdot629$ inches fell on 21 days. On the other hand, in 1871, only $.815$ of an inch was measured on 12 days, and in 1874, only $.953$ of an inch fell on 12 days. In 1887 (the "dry year"), $1\cdot485$ inches of rain

fell on 15 days; in 1889, 1.076 inches fell on, however, as many as 17 days; in 1890 the fall was as much as 3.693 inches on 17 days; but in 1891 only .936 of an inch fell on 16 days, and in 1892 only .991 of an inch on but 9 days. The smallest March rainfall was .288 inch on 8 days in 1893.

The atmosphere was more or less foggy in the city on 10 days—viz., the 16th, 17th, 19th, 20th, 21st, 22nd, 23rd, 24th, 29th, and 31st. High winds were noted on 12 days, reaching the force of a gale on four occasions—the 1st, 5th, 10th, and 11th. Snow or sleet occurred on the 11th, 12th, and 15th; and hail fell on the 1st, 2nd, 11th, 13th, and 15th. The temperature exceeded 50° in the screen on as many as 22 days, compared with 26 days in 1893, only 7 days in 1892, 9 days in 1891, and 19 days in 1890, while it twice fell to 32° in the screen. In March, 1892, frost had occurred in the shade on as many as 16 nights; but no shade frost occurred in March, 1893. The minima on the grass were 32°, or less, on 12 nights, compared with the same number of nights in 1893, 25 nights in 1892, 20 nights in 1891, and 16 nights in 1890. On 2 days the thermometer rose above 60° in the screen, while (as in 1893) it never failed to reach 40°. In March, 1892, the thermometer did not rise to 40° in the screen on 9 days. Solar halos were seen on the 12th and 16th. Brilliant aurora borealis occurred on the night of the 30th.

The first three days of the month were changeable, with frequent showers and strong, chiefly westerly, winds. A fresh gale sprang up in the course of Wednesday night, February 28, and was followed by a downpour of rain and afterwards by sharp hail-showers on Thursday afternoon, the 1st. By 8 a.m. of Friday the barometer had fallen to 28.57 inches at Sumburgh Head in the Shetlands. A rapid increase of atmospheric pressure ensued on this day, and a brief spell of fair, spring-like weather was enjoyed. On Saturday the wind backed to S.W. and freshened with renewed showers.

The weather remained of the "westerly type" throughout the week ended Saturday, the 10th. Strong or squally S.W. to W.N.W. winds, most unstable temperature, frequent rains or passing showers, and fine, bright intervals make up the record of the period. On Sunday a depression lay off the north of Scotland, while another was found over the eastern part of that country. N.W. winds and cool, showery weather prevailed in Ireland. On Monday a new and much more extensive depression came in from the Atlantic. Its centre lay between the Shetlands and Norway at 8 a.m. of Tuesday, when pressure ranged from 30.34 inches at Biarritz to 28.90 at Sumburgh Head (Shetland Mainland). The cyclonic circulation of winds round this low pressure system was well marked—N. in the Shetlands, N.W. in Scotland and Ireland, W. in England, S.W. in Belgium and Holland, S. in Denmark, and S.E. in

Norway. Hardly had this system moved away in a south-easterly direction, when another depression appeared off the west of Scotland, bringing with it more rain or showers. After Wednesday a tendency to anticyclonic conditions existed over the Baltic, so that the wind became south-easterly in Sweden and Norway. In the British Islands, however, S.W. and W. winds persisted. In Dublin the mean height of the barometer was 29·678 inches, pressure ranging between 30·317 inches at 9 p.m. of Sunday (wind, N.W.), and 29·296 inches about 3 p.m. of Friday (wind, W.S.W.). The corrected mean temperature was 44·8°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 44·5°. On Friday the thermometers in the screen rose to 54·7°, having fallen to 35·9° on Wednesday. Rain fell on every day of the week to the total amount of ·616 inch, ·200 inch being measured on Monday, and ·192 inch on Thursday. The prevailing winds were W.N.W. and W.S.W.

Opening amid storm and rain, the week ended Saturday, the 17th, witnessed a change to quieter, finer, though colder weather, and closed with a spring-like day. At 8 a.m. of Sunday the barometer read 30·10 inches at Lyons, but the centre of a very large and deep depression lay between the Orkneys and Shetlands—near the centre the barometer read only 28·10 inches or less; at Sumburgh Head the reading was 28·19 inches, at Wick it was 28·17 inches. The difference of 2 inches in atmospheric pressure between central France and the North of Scotland caused strong westerly (S.W. to N.W.) gales on the British coasts, and the weather was very rough and unsettled. Temperature was particularly unsteady—in Dublin the thermometer had risen to 52·7° during the night, but fell to 35·9° in the course of the day, when heavy showers of hail, sleet, and snow passed over. At Cambridge, the maximum on Sunday was 56°. On Monday night a deep secondary system travelled north-eastwards across England, causing heavy rains or falls of wet snow in many places, and gales of considerable violence on the English and Welsh coasts. Again on Wednesday night did a depression cross England, but on this occasion in a south-easterly direction. Hail and sleet showers were very prevalent until Friday, when the weather became dry, fine, and quiet, with fog and frost at night and bright sunshine by day. On Saturday, after a frosty night, temperature rose fast. In Dublin the mean atmospheric pressure was 29·605 inches, the barometer ranging between 29·096 inches at 7 a.m. of Tuesday (wind, W.), and 30·226 inches at 9 p.m. of Saturday (wind, S.W.). The corrected mean temperature was 41·5°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 39·6°. The extremes of temperature were both recorded on Saturday—they were, highest, 52·8°; lowest, 31·8°. Rain fell on five days to the amount of ·555 inch, ·268 inch being registered on Monday. The prevailing winds were W. and W.N.W.

Conditions were anticyclonic throughout the week ended Saturday,

the 24th, and fine, quiet weather prevailed in the British Islands and Central Europe. In the far North and also in the Mediterranean basin the weather was less settled, but nowhere was it very unfavourable. At first the wind was westerly, but this soon gave place to calms and finally to freshening easterly winds, particularly in the south. Owing to radiation at night and to unclouded sunshine by day the diurnal range of temperature was large. Some very high readings were recorded at Aberdeen, viz., 63° on Sunday and 62° on Wednesday. On the other hand, the screened thermometer fell to 28° on Sunday night at Loughborough and in London. In Dublin, the sky was cloudy from Sunday afternoon to Tuesday afternoon, but with this exception the amount of cloud was small. Heavy dew, haze, and fog prevailed at night and in the mornings, but brilliant sunshine held during the daytime. The mean height of the barometer was 30.324 inches, atmospheric pressure ranging between 30.434 inches at 9 a.m. of Friday (wind, S.S.E.), and 30.246 inches at 9 a.m. of Wednesday (wind calm). It will be observed that the extreme range of atmospheric pressure at this station did not amount to two-tenths of an inch. The corrected mean temperature was 46.2° . The mean value of the dry bulb readings at 9 a.m. and 9 p.m. was 45.1° . On Wednesday the shade temperature reached 57.7° ; on Friday it fell to 31.9° . There was no measurable rainfall, although a very light drizzle was observed for a few moments about 12.30 p.m. of Monday. The prevalent winds were S.E. and E.N.E.

During nearly the whole of the week ended the 31st, anticyclonic conditions were again prevalent over western Europe, the central portion of the high pressure system being located for the most part over Denmark, North Germany, and the South of Scandinavia. The prevailing winds were therefore easterly over France and the southern parts of the United Kingdom, but variable or southerly in the north of our Islands, and south-westerly or westerly in Scandinavia. The weather was generally fair and dry, but a good deal of haze or fog was reported over our Islands during the night and early morning hours, and at some of the eastern stations the weather at times remained thick all day. Owing to the prevalence of fog, temperature varied considerably in different places, but in the day time the thermometer was usually high, the maxima occasionally exceeding 65° in the more central and southern parts of the Kingdom. At night the weather was cold, especially in the inland districts, where frosts occurred rather frequently not only on the surface of the ground, but also in the screen. The daily range was, therefore, very large, the mean value for the entire week being as high as 35.6° both at Loughborough and Cambridge. Towards the close of the period the anti-cyclone receded slowly to the eastwards, and a shallow low pressure system spread over our Islands from the Atlantic. With the exception, however, of a few local showers the weather remained fine in nearly all

districts. On the night of the 30th brilliant aurora was seen over the greater part of the United Kingdom. In Dublin the mean height of the barometer was 30.002 inches, atmospheric pressure ranging between 30.200 inches at 9 p.m. of Wednesday (wind, E.S.E.), and 29.660 inches at 9 p.m. of Friday (wind, E.). The corrected mean temperature was 48.6°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 46.9°. The highest shade temperature was 63.6° on Thursday. The lowest shade temperature was 37.0° on Sunday. The only rainfall was in the form of very slight showers on Saturday. The general direction of wind was easterly. This week was remarkable for unusually fine and cloudless weather. On Friday night there was a brilliant play of auroral light in the northern sky.

The rainfall in Dublin during the three months ending March 31st amounted to 6.028 inches on 53 days, compared with 5.196 inches on 49 days in 1893, 4.808 inches on 48 days in 1892, only 1.650 inches on but 32 days in 1891, 7.470 inches on 45 days in 1890, 5.738 inches on 53 days in 1889, 6.097 inches on 41 days in 1888, and a twenty-five years average of 6.411 inches on 51.0 days (1865-1889, inclusive).

At Knockdolian, Greystones, Co. Wicklow, 1.505 inches of rain fell on 14 days during March; and the total rainfall since January 1, 1894, equals 8.285 inches on 53 days. The corresponding figures for 1893 are .205 inch on 6 days, the total rainfall since January 1 having been 7.475 inches on 49 days.

The rainfall in March at Cloneevin, Killiney, Co. Dublin, was 1.11 inches on 14 days, as against .26 inch on 9 days in 1893, .98 inches on 10 days in 1892, and a nine years' average of 1.72 inches on 14.0 days. The maximum in the 9 years was 3.59 inches in 1888, the minimum was .26 inch in 1893. At this station the total rainfall since January, was 5.56 inches on 55 days, compared with a fall of 5.79 inches on 51 days in the first quarter of 1893.

RAINFALL at 40 Fitzwilliam-square, West, Dublin, during each Quarter of the Twenty-nine Years, 1865-93, with averages for the six years, 1865-70; the decennial periods 1871-80 and 1881-90, respectively; and the three years, 1891-93 inclusive.

Year	RAINFALL IN INCHES.						
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	First Six Months	First Nine Months	Whole Year
1865	5.690	5.440	7.084	9.248	11.130	18.214	27.463
6	7.581	7.497	5.919	4.882	15.078	20.997	25.879
7	9.867	6.108	6.894	4.877	15.970	22.364	27.241
8	5.516	8.498	8.170	7.751	9.014	17.184	24.935
9	7.952	7.595	6.255	5.657	15.547	21.902	27.559
1870	5.576	2.791	3.687	8.805	8.367	12.054	20.859
6 years' Average {	7.030	5.504	6.252	6.870	12.534	18.786	25.656
1871	5.087	5.805	9.504	4.972	10.892	20.396	25.368
2	7.840	8.095	7.864	11.767	15.935	23.799	35.566
3	5.966	2.344	9.720	5.790	8.810	18.030	23.820
4	5.655	8.467	9.170	8.894	9.122	18.292	27.186
5	5.658	5.068	7.814	11.410	10.726	18.540	29.950
6	5.576	4.659	6.748	15.685	10.235	16.978	32.663
7	8.628	7.971	8.631	6.921	16.594	25.225	32.146
8	4.290	11.948	6.975	5.049	16.288	23.213	28.262
9	7.247	8.091	9.937	3.588	15.388	25.275	28.658
1880	6.273	4.845	9.549	18.845	11.118	20.667	34.513
10 years' Average {	6.222	6.229	8.591	8.791	12.451	21.042	29.833
1881	6.133	5.527	8.201	7.172	11.660	19.861	27.033
2	5.598	7.443	8.213	9.930	13.041	21.254	31.184
3	7.487	6.162	9.166	6.586	13.649	22.815	29.351
4	7.734	4.138	4.341	4.254	11.872	16.213	20.467
5	5.959	6.949	7.066	6.640	12.908	19.974	26.614
6	7.290	8.289	5.696	11.691	15.579	21.275	32.966
7	3.842	2.899	4.227	5.633	6.741	10.968	16.601
8	6.097	6.016	5.879	10.687	12.113	17.992	28.679
9	5.738	4.838	9.360	7.336	10.576	19.936	27.272
1890	7.470	5.943	7.442	6.707	13.413	20.855	27.562
10 years' Average {	6.335	5.820	6.959	7.659	12.155	19.114	26.773
1891	1.650	7.098	9.272	9.800	8.748	18.020	27.820
2	4.808	6.962	8.140	5.734	11.770	19.910	25.644
3	5.196	4.423	5.484	3.385	9.624	15.108	20.493
3 years' Average {	3.885	6.163	7.632	6.973	10.048	17.680	24.653

* The rain gauge was at 7 South Anne-street, Dublin, until October 28th, 1867.

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PERISCOPE.

ELECTRICITY FOR GOITRE.

IN the *American Practitioner and News*, Dr. J. L. Howard, of Louisville, prints a paper advocating the use of iodine carried into the gland by the electric current. "Painting the swelling with iodine," he says, "does little else but discolor or blister the skin. The injection of iodine into the gland is dangerous, but by the use of the galvanic current in carrying directly into the substance of the gland we have a treatment absolutely harmless, free from pain, theoretically scientific, and practically effectual." "It has been demonstrated by a simple test that iodine is actually driven through the tissues by an electric current. If the positive electrode of a galvanic battery saturated with an iodine solution is placed on one part of the body, and the negative electrode containing starch is applied some distance away, the blue reaction of the iodine upon the starch is obtained so soon as the circuit is closed." In 18 months this treatment had been applied to 16 cases. Five—all improving—were still under treatment, seven had been discharged cured, four were lost sight of.

SYMPHYSSEOTOMY.

THE *Montreal Medical Journal* quotes the following results of 124 cases of symphyseotomy, from Varnier, in the *Annales de Gynécologie et Obst.*:—Mothers—112 recovered, 12 died. Children—92 lived, 32 died. Of the mothers, 1 died of septicæmia, 1 of sphacelus of the vagina and vulva, 1 of cellulitis and peritonitis due to use of a saw and to forcible introduction of hand and arm, 1 of hæmorrhage and shock following operation.

TUBERCULOUS PLEURISY.

J. H. MUSSER contributes notes on six cases of tuberculous pleurisy. Some of the different modes of onset are given:—1. By a series of acute attacks. 2. Acute bilateral pleurisy with effusion. 3. It may develop insidiously, or secondary to general tuberculosis. He distinguishes tuberculous pleurisy from pulmonary tuberculosis by the amount of pleuro-pulmonic invasion, by the age, absence of extreme hectic and extreme emaciation, by the character of the sputum and absence of bacilli, by the unproductive cough, extreme chest pain and chest deformity. The writer considers that "It is always cheering to make out a tuberculous pleurisy when in the midst of much pulmonary tuberculosis. First, the probability of a cure is very much greater than in other forms of tuberculosis. Second, a partial cure can be promised in many cases. Then the progress is slow, and hence the duration of life much greater

than in pulmonary tuberculosis. The symptoms of the terminal stage are, however, more distressing. The dyspnoea, the breast pang and chest constriction, the internal sensations of dragging or pulling, as upon organs, are agonising to witness. The harassing cough is most weakening to the patient. Tuberculous peritonitis, of sluggish type, adds to the severity of the terminal symptoms."—*International Medical Magazine*, February, 1894.

WHEN TO OPERATE FOR SQUINT.

E. JACKSON (*International Medical Magazine*, February, 1894), in a careful consideration of the question of operations for strabismus, makes the following points: No operation should be done so long as other methods of treatment offer any chance of relief. The slow development of co-ordinating power in some children, and the possibilities of change by future development should prevent early operative interference; and, as a rule, therefore, operation should not be undertaken before the age of five or six years, and at that age complete correction by operation should rarely be attempted. At puberty complete correction of the squint by operation should be undertaken where it has been completely corrected or is of low degree. In adult life the existing indications govern the operation. In cases of squint due to ametropia the latter should be corrected before operation is attempted.

SURGERY OF THE TRIFACIAL NERVE.

H. REINEKING, M.D. (*International Medical Magazine*, February, 1894), after briefly reviewing the literature of this subject, and considering some of the important modifications as made by Carnochen, Thiersch, Heuter, Koenig, Leucke, and Mussbaum, refers more especially to the removal of the Gasserian ganglion and to intercranial neurectomy as practised in the last three years by Horsley, Andrews, Rose, Hartley, and others. He then reports a case, a summary of which is as follows:—J. B. M., a farmer, sixty-three years of age, gives a history of pain in the right supra-orbital region for ten years, and in the right infra-orbital and right occipital regions for five or six years. Within the last two or three years the pain has extended to the upper molar teeth. It generally starts in the frontal region and is never first in the occipital. It is accompanied by twitching of the muscles of the parts affected. The case is one of very severe chronic intractable neuralgia of some of the branches of the ophthalmic and superior maxillary divisions of the trifacial nerve, accompanied by less severe but equally obstinate neuralgia in the region of the great occipital nerve. Neurectomy of the frontal and infra-orbital nerves was decided upon, and the following operation was made: the supra-orbital nerve was exposed at its point of emergence from the supra-orbital foramen, liberated by chiselling away a small

portion of the ridge, and separated as far back in the orbit as possible. By traction, twisting, and a little dissection of the nerves, nearly all of the orbital portion and its branches were removed. The infra-orbital was exposed by removal of the roof of the infra-orbital canal, and grasped and twisted off in the same manner as before. A small opening into the antrum of Highmore was accidentally made, and was drained for three or four days. The wound healed by first intention, and all pain disappeared in about three days. The points in the treatment on which the writer would lay especial stress are—1. Thorough following up, extracting, and dissecting out of the peripheral, muscular, and cutaneous branches. 2. Slow torsion, and gentle stretching of the central stump until it gives away.

CONGENITAL BRANCHIAL ANOMALIES.

RUDOLPH MATAS, M.D., describes (*Medical News*, Philadelphia, LXIII., 23) a number of cases where imperfect obliteration of embryonic branchial structure led to congenital anomalies. These took the form of fistula from patency of a branchial cleft or of the precervical sinus of His, and of chondromatous or bony formations from permanence of some parts of the branchial arches which normally disappear before birth. Some of the cases are illustrated.

OXYGEN IN CARBONIC ACID POISONING.

W. E. THOMSON, M.D., reports (*Glasgow Medical Journal*, December, 1893, and January, 1894) experiments in the use of air and of oxygen in carbonic acid poisoning, with the following summarised conclusions:—
1. In the case of rabbits asphyxiated slowly or rapidly, oxygen is of no greater service than air. 2. Pure oxygen, when inhaled by a healthy man for five minutes, produces no appreciable effect either on the respiratory rate and volume, or on the pulse rate and volume. 3. An animal may be placed in a chamber containing 50 per cent. CO₂, and retained there a long time without the supervention of muscular collapse, provided a gentle stream of a respirable gas—air or oxygen indifferently—be allowed to play on the nostrils and agitate the surrounding atmosphere.

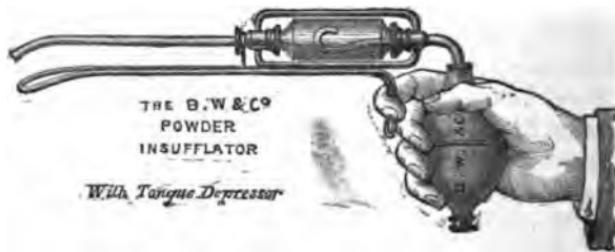
GROWTH OF FINGER-NAILS.

DR. A. L. BENEDICT reports (*Medical News*, Philadelphia, LXIII., 19) measurements of weight of finger-nails and rapidity of growth. The parings of seven months weighed (when allowed a couple of years' drying) 1.56 grams. This is at the rate of about 2.64 grams per annum. This would be about 230 grams in a lifetime of 90 years. The rate of growth he found to be 43.2 millimetres per annum, or 3.88 metres in a lifetime of 90 years.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Powder Insufflator.

Messrs. Burroughs, Wellcome, and Company, of Snow Hill Buildings, London, E.C., have recently patented an ingenious and neat little instrument for the application of dry powders by insufflation to the mucous membranes of the nose and mouth, as well as to sores, ulcers, or abscesses affecting the outer skin. The great merit of this apparatus is that, by a system of interchangeable powder cylinders, it allows the substitution of one powder for another without loss of time and in a cleanly manner. The apparatus consists of an oval rubber bulb, about as large as a hen's egg, fitted with an air valve enclosed in a metallic valve box. From the rubber bulb the air is driven by compression of the bulb, through a curve-plated tube into the powder cylinder, which is made of celluloid and is supported by a plated cradle. This powder cylinder having been charged, by means of a wooden funnel, with the powder intended for insufflation, is placed in position by removing a screw cap, and by pressing its small end against a spring inside the mount at the bulb end of the cradle. The neck of the cylinder may then be adjusted to the opposite mount, to which also finally a delivery tube, which may be straight, curved, or furcate, is fastened.



As will be seen from the sketch, the method of handling the insufflator is natural and easy, so that the operator is enabled both to hold the instrument and to bring about delivery of the powder with one hand, thus leaving the other hand free—a very appreciable advantage. Again, each instrument is provided with two forms of delivery tube (one straight and the other curved), which are easily and quickly exchangeable. A very effective attachment for depressing the tongue completes the instrument.

In accordance with a suggestion from a London physician, the patentees have introduced an improved tube, having a furcate end, the advantage of which will be at once obvious to medical practitioners, the insufflation being delivered in two nebulae proceeding at an acute angle.



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PART I.

ORIGINAL COMMUNICATIONS.

ART. XIX.—*Observations on the Aetiology, Prevention, and Treatment of Puerperal Septicæmia.** By THOMAS MORE MADDEN, M.D., F.R.C.S. Ed.; Obstetric Physician and Gynæcologist, Mater Misericordie Hospital; Consultant and Ex-Master, National Lying-in Hospital; Consulting Physician, Hospital for Children, Dublin, &c.

RECENT bacteriological investigations have apparently brought us within such a measurable distance of accurate knowledge of the general causation and prophylaxis of puerperal fever or septicæmia as will probably result in a corresponding advance in its treatment. Nevertheless, on all these questions there still remains, as proven by the deaths recorded from infectious puerperal disease in the latest Annual Reports of the Registrar-General, abundant need for all the light that can be thrown on this subject by clinical experience as well as by scientific research.

From the former standpoint, therefore, and with the object of some possible practical utility, rather than that of any useless attempt at novelty, which would be almost impossible concerning a topic so trite and often discussed as this, I now submit the following observations, founded on a long and familiar acquaintance with

* Read before the Section of Obstetrics of the Royal Academy of Medicine, on Friday, May 18, 1894.

puerperal fever in hospital or consultation practice, in the hope of also eliciting the opinions and experience of other members of the Academy on several questions of no little importance.

Before referring to the causes and forms of puerperal septicæmia, which, together with their prophylaxis in each instance, I purpose very briefly to consider *seriatim*, it should, perhaps, be premised that under this term may be here included all those forms of infectious pyrexial disease that are directly consequent on parturition and peculiar to the puerperal state, or which then assume a specific character. Hence the older expressions puerperal, or lying-in fever, metro-peritonitis, metria, &c., should be considered merely synonyms for a disease, or group of diseases, the characteristic of which is an infective affinity for the puerperal state, the varying phases and different symptoms of septicæmia in successive epidemics being chiefly ascribable to the special circumstances, hygienic surroundings, and constitutional condition of the patients in each instance, as well as to the source of the septic matter, or pathogenic micro-organisms, in which must be sought the *fons et origo* of each and every type of puerperal fever.

Etiology of Puerperal Septicæmia—Bacteria.—The classification of the microbes or germs in which we now recognise the starting-point of septicæmia after child-birth is, however, a question which, as yet, is by no means definitively settled. As Dr. Manton, of Detroit, has observed in an able *résumé* of the modern literature of the subject, although "many workers are in the field endeavouring to discover a special germ of puerperal infection, no great addition has been made to our positive knowledge of the subject. The great difficulty lies in the fact that apparently the same micro-organisms found in septic infection are also found in a variety of other morbid conditions, and even in the healthy body."

Smith has discovered in cultures from the heart-blood of a woman dead of "puerperal fever" a streptococcus which he believes to be specific, as the same organism was found in blood taken from the finger of a woman suffering from puerperal septic infection. He states that his germ differs essentially from all other streptococci, and from those described by Fehleisen and Rosenbach. Lustig has also demonstrated a streptococcus in the blood from the heart and spleen of a woman who died from septic endometritis and peritonitis, but concludes that the organism is identical with that of Fehleisen. Clivio and Monti have published

similar observations. Bunn states that the micro-organisms which cause the infectious form of puerperal fever are almost exclusively the chain micrococci, which are identical with the streptococci of ordinary wound infection. He believes that the differentiation of streptococci into *Streptococcus erysipelatis*, &c., is purely artificial, as no morphological or biological differences exist between the streptococci of phlegmon, of puerperal septicæmia, and of true erysipelas. Widal concurs in this opinion, as he has found the *Streptococcus pyogenes* not only in septic infection but in erysipelas, suppurative pleuritis occurring in the puerperium, and other conditions.*

The investigations thus summarised sustain the opinions which I have before expressed from evidence furnished by the history of epidemics of puerperal fever that in my own day, and previously from time to time, have prevailed in the Dublin, as in all other, lying-in hospitals—viz., that puerperal septicæmia may result from infection with the poison of various zymotic diseases, such as erysipelas, scarlatina, and typhoidal fevers, as well as from contagion transmitted from other patients suffering from puerperal fever.

“Researches into the germ theory of disease,” as Dr. Kinkead says, “would seem to support this view. Thus it is stated that micro-organisms of one group may, by development, change into one of another group—a micrococcus developing into a bacterium, this into a bacillus, and this again into a spirillum. Buchner believed that, by changing the nutritive soil, the micro-organisms could be altered. His experiments are looked on as uncertain, because he used in some of them blood; but blood could hardly be a more impure cultivator than the fluids of a puerperal woman. According to Wernich, an innocent bacillus may develop into a typhoid one, and it appears probable that it is the condition of the virus which determines the form of the disease set up by the micro-organism.”^b

Traumatic Causes of Puerperal Septicæmia.—Amongst the channels through which bacteria may invade the puerperal system not the least important are traumatic lesions of the genital tract, such as lacerations of the perinæum and cervix uteri and vaginal abrasions from parturition, however slight or unrecognised their

* *Puerperal Diseases.* By W. P. Manton, M.D., in *Annual of Universal Medical Sciences.* Vol. II. Philadelphia. 1890.

^b *American Journal of Obstetrics,* 1884.

extent may be. Nor should it be forgotten that such lesions, as shown by Leopold,* are not unlikely to become the avenues of puerperal infection originating in the introduction, by careless examination or otherwise, of purulent or gonorrhœal matter, dirt, urine, faeces, or vulvo-vaginal discharges, which may contain pathogenic micro-organisms or germs.

Under these circumstances the importance of thorough cleansing of the genital tract by hot water irrigation, preferably medicated with some safe and effective antiseptic, such as boric acid (1 in 25), or carbolic acid (1 in 40), or lysol (1 in 100), immediately before as well as after delivery, is apparent. Nor less obvious is the necessity for the strictest asepsis in the management of every stage of labour, as well as of the puerperium, to prevent the consequence of infection through the hand of the midwifery attendant. For the prevention of this danger more, however, is required than the routine practice now relied on by some practitioners and nurses of dipping their hands (not impossibly previously uncleansed) in corrosive sublimate or other antiseptic solution, which is apparently regarded, by recent authorities, as the essential precaution to be universally resorted to. The employment of antiseptics is unquestionably useful, and I yield to no one in my appreciation of their value as adjuncts to asepsis, but they can never replace the latter, and without it are, *per se*, probably of about as much utility as the "Fetish of an African medicine man" might prove under similar circumstances. The one effective prophylactic for the purpose now referred to is cleanliness, and this should be secured by long and careful hand-scrubbing in clean hot water with nail brush and soap (if strong carbolic soap, so much the better), until perfect asepsis is attained; after which the hand may, and should, be immersed in an antiseptic solution, before each and every vaginal and uterine examination or contact with the lying-in patient.

Auto-infection, as it was termed, although no longer holding the position formerly assigned to it in the *etiology* of puerperal fever, cannot be wholly dismissed from consideration as a possible factor in the causation of the disease. To this source of puerperal fever should, I think, be attached a greater importance and a different significance than that assigned by Waltenbach, who defines auto-infection as "a process in which the micro-organisms which are present in the genital secretions before labour develop virulence."

* Leopold. Centralbl. für Gynäk., No. 29, 1892.

If this view be a correct one it should lead us to rely on the systematic use of antiseptic vaginal injections, for some time previous to the expected date of labour, as the most effectual prophylactic of auto-genetic puerperal fever; but this conclusion is not borne out by experience.

According to Dr. Herman, the results observed in hospitals where that practice was followed have not proved better than those attained without it, and as the same writer concludes: "The usefulness of vaginal injections before delivery is theoretically not shown, practically not proved; moreover, such injections may be the means of doing harm, and, therefore, midwives should not be taught to use them." Moreover, if, as Bokelmann points out, no one has demonstrated pathogenic germs in either the ante- or post-partum vaginal discharges of a healthy woman, the preparatory disinfection of this passage cannot be necessary in such cases.

It does not, however, appear to me requisite to admit the existence of pathological microbes in the ante-partum vaginal secretions of a healthy woman to understand the occurrence of so-called auto-genetic puerperal fever—the more probable explanation of which may be found in the decomposition of retained puerperal discharges, clots, membranes, or placental *débris* into which infective micro-organisms have gained access.

For the prevention, therefore, of such infection all those details of skilled nursing, by which the nearest approach to asepsis may be attained in the general management and surroundings of the lying-in patient, are of vital importance; nor is it beneath the practitioner to see that these precautions are properly carried out by the nurse, and that throughout the puerperal state the genitalia are kept as free as possible from sepsis by frequent and systematic antiseptic ablutions. For this purpose the sponges which are still too frequently used in the puerperal toilet should, of course, be replaced by wood wool pads that can be thrown into the fire immediately after use, and the linen diaper superseded by the sanitary napkin of the same material that can be similarly destroyed. The excreta should be received in utensils containing chloride of lime or izal, and at once removed from the lying-in room, for the perfect cleanliness of every part of which the nurse should be made to feel herself under the ever-watchful supervision of the obstetrician.

All such attention to external cleanliness will, however, avail little for the prevention of puerperal septicæmia if the complete asepsis of the internal genital tract be neglected. With this view

the importance of favouring natural drainage, or escape of utero-vaginal discharges—which, as Dr. Goodell, of Philadelphia, and Dr. Duke, of Cheltenham, have shown, may be facilitated by departing from the routine maintenance of the horizontal position, which is frequently too rigidly or too long enforced during the puerperium—must commend itself to every obstetrician, no less than the advantages obtainable from thoroughly washing away from the parts all such possibly pent-up discharges by efficient local antiseptic flushing by the uterine irrigator.

Whether the latter practice is universally necessary or not after perfectly normal labour there is still difference of views; nevertheless, with some eminent exceptions, the consensus of modern opinion is in its favour as a general rule of practice and when not specially contra-indicated. There can, however, be “no possible doubt whatever” of the absolute necessity of thus washing out the uterus as well as the vagina in every instance of deviation from the course of natural delivery that has called for instrumental or manual interposition, or where labour has been unduly protracted, or the expulsion of the placenta delayed, or the soft parts injured; as well as in cases where, either from too frequent or careless examinations, or the general condition of the patient, or of her surroundings, there has been any special probability of the admission of sepsis. Under all such circumstances, unquestionably the uterus should be thoroughly flushed out immediately after delivery with hot water (120°), medicated with some suitable antiseptic, by means of the irrigator, and never by the ordinary siphon syringe.

The last-named instrument, though still in common use, is, in my opinion, decidedly unsafe when employed for the purpose now referred to, as exemplified in the cases which I have elsewhere recorded, in which fluid thus injected was forced, with serious consequences, into the peritoneal cavity through the patent Fallopian tubes, or into the general circulation through the still open uterine sinuses. Hence I would again counsel the complete disuse of the ordinary syringe in midwifery practice and recommend in its stead the employment of an irrigator such as that here shown, which I first exhibited in this hall nearly twenty years ago, and which, since then, has been reproduced by others as an appliance by which the necessary washing out of the uterus after parturition may be more safely as well as effectually accomplished. To thus cleanse out the uterus, pure hot water, if

properly employed in sufficient quantity and at a sufficiently high temperature—viz., 120°—may probably in most instances be found as efficient as any of the antiseptic solutions in general use, and has the advantage of being procurable when no antiseptic may be obtainable. This is, however, seldom the case, and where we have the power we are, I think, bound to employ an antiseptic, and in so doing to consider not only the potency of its germicidal action but also the safety of its use. Of these agents, for the purpose under consideration, I myself therefore prefer either a one in fifty or sixty solution of carbolic acid or a saturated boric solution (*qss. ad O.*), or turpentine (*qss. ad O.*), or some one of the still milder disinfectants, such as a ten-volume preparation of peroxide of hydrogen, or Condy's fluid or sanitas, in preference to corrosive sublimate solution for intra-uterine flushing. The latter, although possibly the most active and generally employed, is, in my opinion, the most hazardous to the patient of all germicides used in obstetric practice. If so employed at all, the solution of bichloride of mercury should never be stronger than 1 in 2,000, which is sufficiently germicidal, whilst of course less liable to produce those toxicological and fatal effects that have followed the use of the much stronger solutions (such as 1 in 1,000 or even 1 in 500), recommended by some authorities, of this unsafe uterine antiseptic, the obstetric use of which should, I think, be chiefly restricted to ablutions of the external genitalia.

Atmospheric, Epidemic and Endemic, Causes of Puerperal Fever.—Besides those sources whence the infection of puerperal septicæmia may invade the utero-genital organs already predisposed by recent parturition for its reception and development, the germs of the disease may also be introduced through other channels into the system of the lying-in patient. Firstly, this may occur from what the older writers aptly termed the “prevailing epidemic constitution of the atmosphere;” or, as Dr. M'Clintock expressed the same idea, from “certain states of the atmosphere which powerfully influence the extension of zymotica, either by favouring the spread or transference of their respective contagia, or by disposing the constitution to their receptivity.” Secondly, puerperal fever may be endemically occasioned by an atmosphere contaminated by septic or malarial emanations, sewer-gas, or otherwise, as well as directly from disease germs evolved from other patients in the same locality. The potentiality of the first-named causes of puerperal fever is strikingly evinced

in the history of several epidemics of this disease which in former years, at times when other zymotics, such as typhus fever or erysipelas, were also epidemic, broke out in Dublin, and then manifesting an intensity of virulence now fortunately unknown, repeatedly decimated the wards of the lying-in hospital. Moreover, the area over which the disease then extended was so large, and the number of patients thus simultaneously affected in different districts so great, as to preclude the possibility of its prevalence being ascribable to any personally transmitted contagion, and supporting the view that both contemporaneously prevailing epidemics were modifications of the same virus and were consequent on the same "generally pervading atmospheric influence."

Atmospheric contamination by sewer-gas, as a cause of puerperal septicæmia, is a more important, because preventable, matter for consideration than that last referred to. Nor is it confined, as some think, to the unsanitary and squalid dwellings of the poor. On the contrary, the worst cases of septicæmia that have come under my observation in consultation practice have been in patients of the wealthiest class, whose rooms, fitted with the most costly appliances of so-called sanitary engineering, were actually less sanitarily circumstanced than the tenements of the poor around their mansions, being in direct communication, through bath-room or closet, with sewer pipes, the defective arrangements of which proved veritable death-traps for such patients. As Dr. Handfield Jones observes: "On the question, however, of puerperal poisoning due to bad sanitary surroundings, much has yet to be learnt. . . . In what manner the foul material gains access to the patient's body, whether by the respiratory tract or otherwise, may for some time be a debated question; but there can be no doubt that this form of septic intoxication does actually exist. Probably most practitioners know of cases in which patients, whose lying-in chamber was in close proximity to bad drains, privies, slaughter-houses, or other sources of foul emanations, have suffered for some weeks from delivery from pyrexia, fetid discharge, and other signs of poisoning. In all such cases the remarkable clinical fact is this—viz., that while douching, quinine, and other remedial means have no effect on the diseased condition, recovery rapidly takes place when the patient is moved into some sanitary dwelling. Numerous cases could be quoted in support of this assertion, did space permit."*

* Vide The Year-Book of Treatment for 1893. P. 368.

Lying-in Hospitals.—It would be impossible to discuss the aetiology of puerperal septicæmia without some allusion to the occasional influence of lying-in hospitals in the epidemic spread of the disease. In such institutions it has been repeatedly observed that epidemics of this kind were traceable to one—and that possibly a mild—case of puerperal fever in a ward, which was followed by the epidemic prevalence therein of septicæmia in an increasing virulence of type and fatality, and often necessitating for its arrest the temporary closure of the maternity. This fact sustains the view that in hospitals where considerable numbers of puerperal women are segregated, what was formerly termed a “puerperal atmosphere” is liable to be created and to linger, in which the germs of septicæmia may for a time remain latent, until eventually, under certain ill-defined conditions, they may suddenly develop special infective activity and virulence. The risk of these consequences can, however, as recent experience here and elsewhere has shown, be largely obviated by judicious precautions. Firstly, therefore, no ward should ever be occupied by an uninterrupted succession of lying-in patients; secondly, after each fresh batch of obstetric cases the ward should be thoroughly cleansed and disinfected; thirdly, the purity and sufficiency of air, so essential for this class of patients, should be duly secured by efficient ventilation and the avoidance of any overcrowding in the wards thus occupied, in which no puerperal patient should be afforded less than 2,500 cubic feet of space.

Prophylaxis of Puerperal Septicæmia before Delivery.—Having already dwelt sufficiently on the vital importance of strict asepsis in everything appertaining to the lying-in patient and her surroundings, and the means by which it may be secured during labour and in the puerperal state, it only remains for me in this connection to glance briefly at the precautionary measures which should be taken before delivery for the prevention of subsequent septicæmia. To minimise the risk of this as far as possible is obviously a primary duty of every practitioner who accepts an obstetric engagement. I may therefore here repeat that if the obstetrician has any voice, as he should have, on such a matter, he cannot use it better than in urging his patient to select for her confinement a room apart from any possible communication, by lavatory or otherwise, with the sewerage of the house. That apartment should, moreover, be as large, well ventilated, sunny in aspect, and scrupulously clean as can be obtained. Without going to the length of those who

insist on stripping the lying-in room of nearly all the usual furniture and comforts to an extent calculated to increase the terrors of parturition and thus add to its dangers, it is desirable to free the room from any such superfluity of furniture as might materially interfere with the necessary respiratory cubic space, to clear it as far as possible from heavy curtains or hangings, and to see that the patient has a light metal bedstead with spring mattress for her accouchement.

During the latter months of pregnancy the patient should be, as it were, put in training for the coming event by careful attention to her general hygiene, diet, and evacuations, as well as by cheerful surroundings, mental occupation, and open exercise, so as to thus maintain her general health at the highest attainable level. In most cases, bearing in mind that the latter portion of pregnancy is physiologically an anaemic condition, that object may be also aided at this time by the administration of some ferruginous tonic, such as tincture of perchloride of iron. Finally, I may be permitted to add, although it hardly comes under the above heading, that after delivery the same remedy given in combination with liquor ergotæ in full and efficient doses will be found most useful (by securing contraction of the uterus, sealing the vessels, and expressing discharges therefrom) in the prevention of puerperal septicæmia when employed in conjunction with the measures before referred to.

Treatment.—The therapeutics of a disease so complex in its pathology and many-sided in its forms and relations, cannot be discussed without reference to the special type of the disease and its predominant symptoms in each instance. To enter fully on so extensive a subject would be manifestly impossible within my present limits, but, without attempting this, I may at least reiterate that during my own experience the prevalent type or character of puerperal fever, and, consequently, its routine treatment, has varied widely in successive epidemics. For instance, in my student days metria, or septic metro-peritonitis, was the ordinary and too commonly fatal form of infective puerperal disease witnessed in the Rotunda Hospital, where it was then appropriately treated by mercurials, opium, and stimulants, together with local leeching and poulticing over the hypogastrum. A few years later, when I became one of the medical staff of the same hospital, the general form of puerperal fever, as noticed by myself during some very fatal epidemics, had changed from an inflammatory to a typhoid



CLINICAL CHART OF TEMPERATURE.

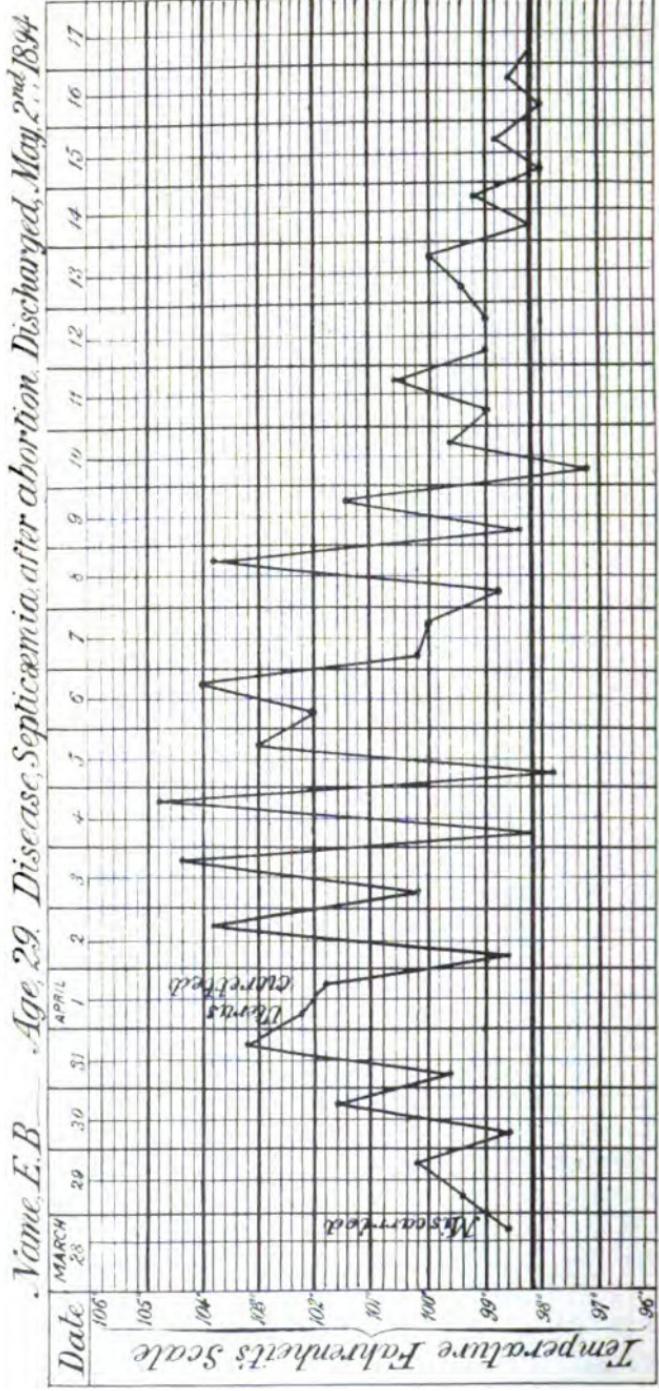
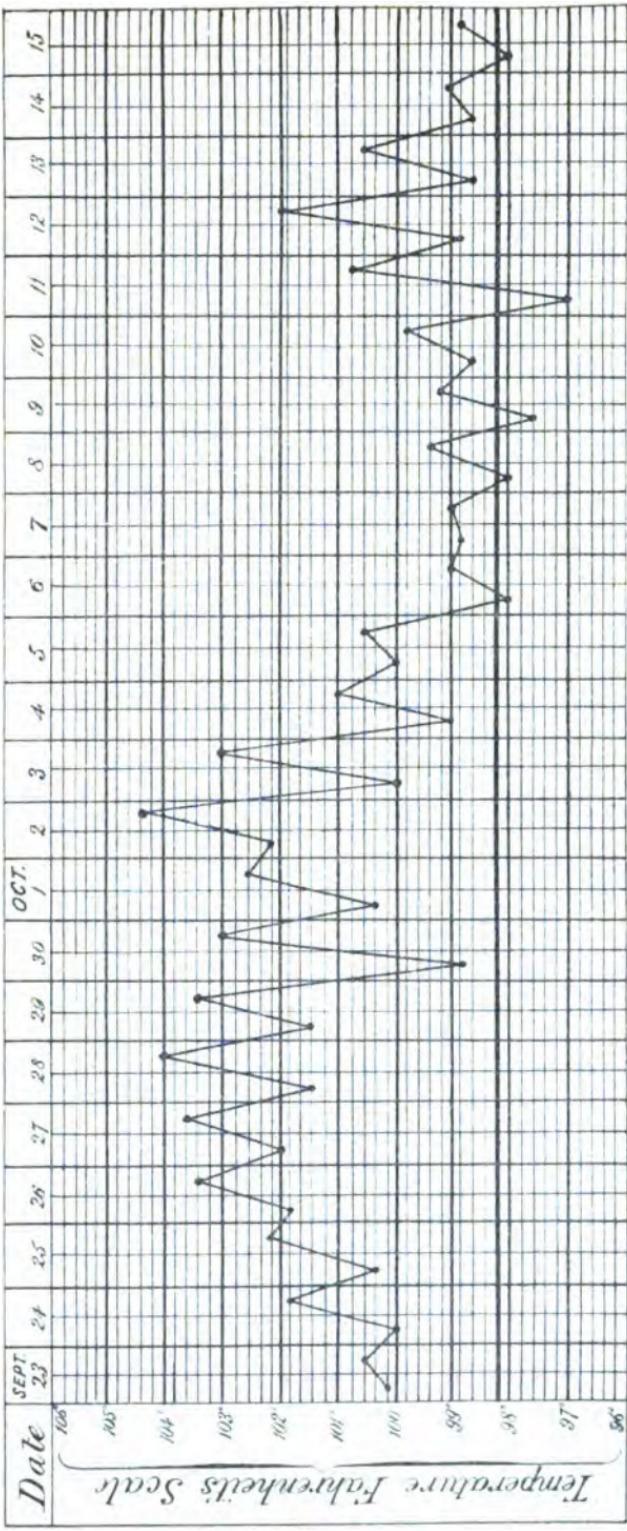
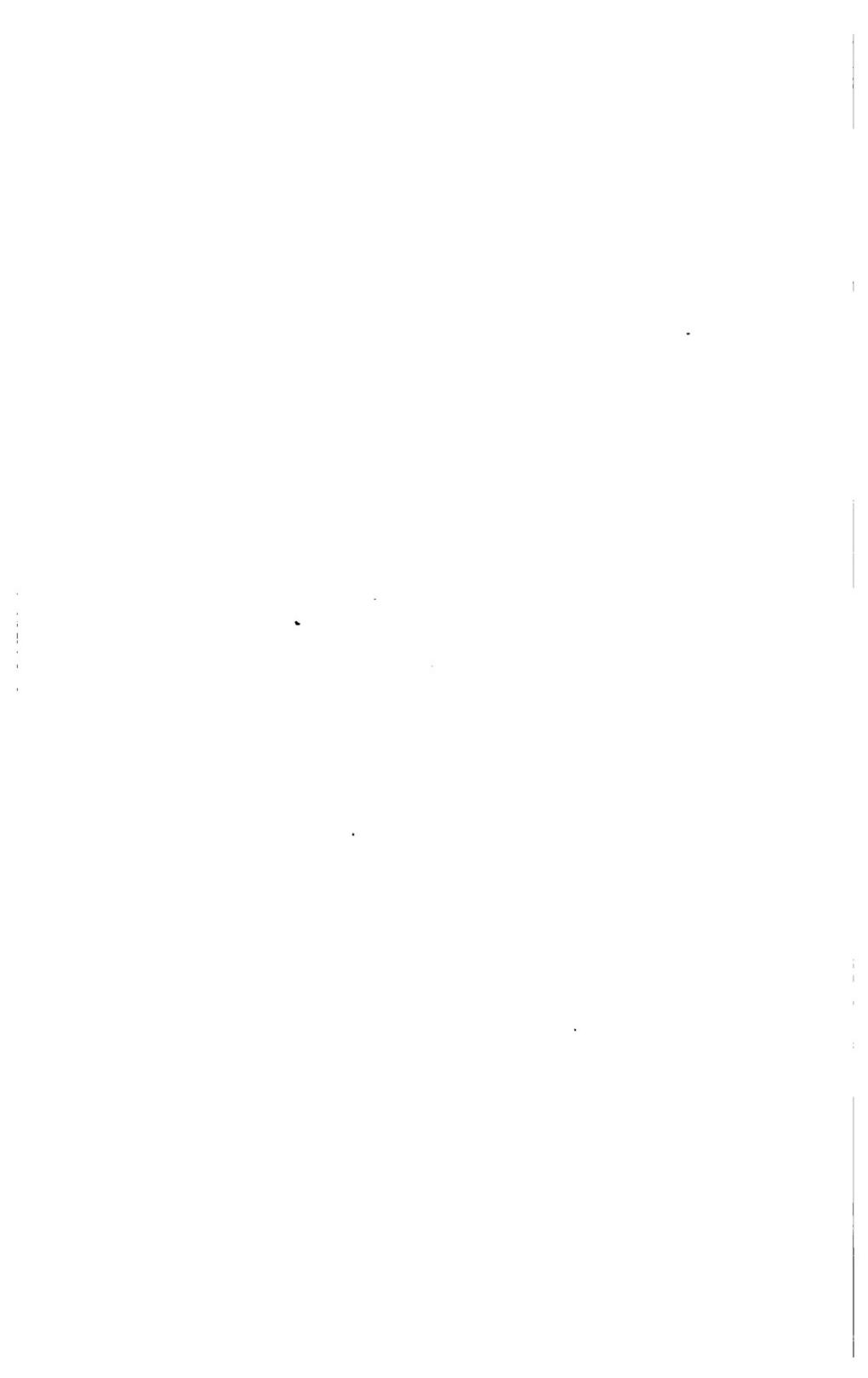


Chart No. 2.

CLINICAL CHART OF TEMPERATURE





character, with little local pain or tenderness, but attended by great prostration, retching, diarrhoea, and occasionally low muttering delirium and other evidences of profound septic intoxication, in which no antiphlogistic measures such as were previously adopted could for a moment be thought of.

With some modifications the latter type of septicæmia, although in a lesser degree of intensity, has continued to the present time, when it very commonly presents a distinctly remittent character. In such cases, as I have more recently observed, the septic nature of the disease is clearly evinced by "spiking" clinical charts, exemplified by those here shown, which, especially in unfavourable cases, such as in that of which the chart is now exhibited, present the most marked and sudden alternations of temperature—i.e., from 105° or upwards to subnormal within a few hours—a circumstance frequently prognosticating a speedily fatal event.

Even in more favourable instances there are, as a rule, distinct daily remissions and remarkable alternations in pulse-rate and temperature. Thus, in some of these charts of cases in which patients recovered, yet, for instance, in the following, we observe a morning temperature of 99° or 100°, with a pulse little above normal, whilst on the same evening the pulse approximated it, or exceeded 120, and the temperature reached 104° or upwards.

Such symptoms obviously demand, in the first place, free stimulation and suitable nutrition; secondly, the exhibition of quinine both as an anti-periodic and as a possible germicide; and, thirdly, the removal of all removable septic matter from the internal genitalia by antiseptic flushing, or even in some instances, as recommended by Dr. Duke and others, by the use of the blunt uterine curette. The advantages of washing out the uterus under the circumstances referred to with either a ten-volume preparation of peroxide of hydrogen, or else a one in forty or fifty solution of carbolic acid, at a temperature of 115° or 120°, are incontestable, the result of thus flushing out a septic uterine cavity being apparent in many cases that have come under my own notice, in which this procedure was followed by subsidence of previously high temperature and pulse-rate, increase and improvement in the discharges, and a speedy amelioration in the aspect and general condition of the patient.

With regard to the more heroic surgical procedure that has been advocated, and in several instances successfully employed, in the acute local inflammatory forms of puerperal fever or puerperal

metro-peritonitis—viz., resort to laparotomy and washing out the peritoneal cavity—I need only observe that such operations, however useful in appropriate cases, are by no means frequently called for or justified in the present type of puerperal septicæmic fever that here comes under notice, in which the disease is now very seldom thus localised. Nor in any of the cases of the kind that I have seen of late years would the employment of cold baths or affusion as a puerperal antipyretic, which has been recently revived in Australian practice* as a remedy for puerperal septicæmia, appear to me admissible.

Of the countless drugs that, from time to time, have been advocated there are but three which, in the present type of puerperal septicæmia, seem to me to possess even an approach to any specific remedial influence—viz., quinine, sulphurous acid, and turpentine. The value of the first-named of these—quinine, more especially when given in combination with grey powder and dried soda—I have already referred to; the second—sulphurous acid—ever since its suggestion by Polli, of Milan, as a remedy in pyæmic cases, has been employed by myself in half drachm doses every third hour in several instances of puerperal septicæmia, in which it has apparently acted as a powerful oxygenating and germicidal agent, and is more especially indicated in those cases wherein the occurrence of gastro-intestinal complication, evinced by retching and diarrhoea, prevents the exhibition of the last of the above-mentioned remedies, to which I shall now refer.

Turpentine.—To this last I would myself attach special importance in all cases of puerperal septicæmia in which its use may be tolerated by the stomach and bowels. In such cases rectified spirit of turpentine, when given in efficient—i.e., 10 to 20 drops—doses every third or fourth hour, and when not specially contraindicated by the above-mentioned complications, unquestionably exerts a marked influence in relieving meteorism, stimulating the system, and improving the discharges of the puerperal patient, as has been abundantly proved by clinical experience from the time of Dr. Brennan, who, upwards of eighty years ago, was expelled from the Rotunda Hospital for there first insisting on its use, down to that of those who, like myself, have continued its employment in similar instances to the present day.

How turpentines operate in such cases I know not, though, as

* Vide Arthur and Anderson, in *Australasian Medical Gazette*. January and March, 1894.

I have before conjectured, its germicidal potency has probably no less share in its remedial action than its effect as a powerful stimulant. Be this surmise well or ill founded matters comparatively little so long as curative results follow its judicious administration; for if all remedies, the *modus medendi* of which was not accurately known, were to be excluded from the coming edition of the Pharmacopœia, that now bulky volume might well be compressed into Lilliputian dimensions. Two circumstances have probably militated against the more general recognition in modern practice of the value of turpentine in some cases of puerperal septicæmia—viz., firstly, that it is a remedy belonging to a pre-scientific period; and secondly, that it was originally suggested by an Irish physician, and one, moreover, by no means popular with his contemporaries. These objections, although, no doubt, sufficiently grave, are, however, hardly as fully appreciated by myself as they may be by some possibly more scientific practitioners who apparently regard the antiquity of a remedy as synonymous with its inefficacy; or by others again who, in reference to any allusion to neglected Irish medical contributors or contributions, such as Brennan and his suggestion of turpentine, seem disposed to re-echo the old-time expressed doubt, “Can there anything good come out of this Nazareth?” of ours. I am not altogether without hope, however, that the utility in certain forms of septicæmia of that now too-little employed remedy may perhaps be rediscovered by some foreign authority, and that if thus recommended the value of turpentine in appropriate puerperal cases may be here and elsewhere again more adequately recognised. Besides those three last-mentioned drugs, from which, as I think, some specific advantage may be derived in the treatment of septicæmia, there are, of course, many others available in accordance with the predominant symptoms and stage of the disease, as well as the special condition of the patient in each instance. These remedies, however, it would be needless to consider here, as their employment must obviously be directed by the broad principles of general therapeutics. I may, however, in conclusion, refer very briefly to one agent from which I have experienced much benefit in some cases of this kind—namely, phenazone. In the earlier stages of the disease no remedy appears to me to have such influence in reducing temperature and pulse-rate, unlocking pent-up lochial and mammary secretions, inducing sleep and tranquillising the patient, as phenazone (or antipyrin) in small—i.e., from seven to

ten-grain doses every sixth or eighth hour. The effects thus produced are, however, too frequently but temporary; and in the latter stages of puerperal septicæmia, or where from the first the intensity of the septic intoxication and consequent prostration are most marked, then, it is almost needless to add, antipyrin is distinctly contra-indicated.

ART. XX.—Some Points in connection with the Administration of Hospital Relief.* By H. C. TWEEDY, M.D., Dubl.; Fellow and Examiner, Royal College of Physicians; Diplomate in State Medicine, T.C.D.; Physician to Madam Steevens' Hospital.

DUBLIN is proud of her hospitals—naturally proud of them, justly proud of them. From the year of grace 1720, when the first general hospital was founded by Madam Steevens, of happy memory, down to the present day, the work done in them has been of incalculable service to our less fortunate fellow-countrymen, and at no period of their existence have they reached a higher level of efficiency than at the present time.

This is as it should be; and it is the ardent desire of every lover of his country that they should be maintained in a state of excellence worthy of the fame of the Dublin School of Medicine. It is, therefore, with regret that we observe signs—slight signs, it is true, but not the less requiring our vigilant attention—that our hospitals are in danger of being utilised by the general public in a manner never contemplated by their pious founders.

The functions of a Dublin hospital are manifold. In an address delivered some years ago by Dr. Grimshaw, he thus summarises the essential conditions to be fulfilled by them :—

“ 1st. As charitable institutions for the relief of the sick poor of Dublin and its immediate vicinity.

“ 2nd. As institutions for the prevention of the spread of infective disease.

“ 3rd. As charitable institutions affording special opportunities for the resort of special cases, seeking specially skilled medical and surgical advice; thus affording to the poor in the remote districts in Ireland the advantages attained by the rich, who can afford to visit consulting physicians and surgeons at metropolitan centres.

* Read before the Public Health Section of the Royal Academy of Medicine in Ireland, on Friday, April 20, 1894.

"4th. As educational institutions—

- (a) For medical students.
- (b) For nurses."

There are many persons who believe—and no doubt with a great deal of truth on their side—that the amount of intern hospital accommodation in Dublin is in excess of the needs of the population. On that question I do not wish to speak now, more than incidentally; but I would ask your attention to two points in connection with the administration of medical charities—viz., the question of—

- (a) Pay wards in hospitals.
- (b) Out-patients.

In both of which departments there is a growing need for some radical changes.

Let us take, first, the question of pay wards. These were originally established to meet a great want. There is a large class of persons—clerks with small salaries, ladies in reduced circumstances, &c.—who, in the case of severe illness, or some serious operation, would be quite unable to pay for the necessary nursing, not to speak of doctors' fees. To such persons the pay ward in a large hospital is an ineffable boon. There they pay a sum varying from 10s. to £2 2s. per week, for which they get the necessary board, nursing, and medical attendance. But gradually a privilege, that was intended only for persons in specially straitened circumstances, is being usurped by—I will not say a better, but a better-off class.

Whether private patients should be admitted at all into a charitable institution is a matter open to discussion, but when persons in good circumstances come into a hospital as private patients, at a nominal charge, either from motives of economy, or for greater safety in the case of serious operations, the responsibility becomes a very grave one for those who permit such a flagrant abuse of a charity. And what does the hospital gain by such cases? Little or nothing. The cost of an ordinary patient per diem is 3s. 9d., if we include maintenance, establishment, and management. Few pay-patients give more than £1 1s. per week, so that in the majority of instances the hospital loses at least 5s. 3d. per week, not to mention the fact that such patients cost considerably more for maintenance, inasmuch as they require many additional comforts not supplied to ordinary patients.

But what about the doctors? Surely, "sufferance is the badge

of all our tribe." In most of the Dublin hospitals the position of physician and surgeon is an honorary one. The staff receive their share of the students' fees, and nothing more, save the privilege of using the ordinary patients as teaching material. The pay-patients, however, are not thus available for instruction; they or their friends would resent anything of the kind. Nor can the doctor receive any fee from them. Not only is it a matter of honour with him to take no fees from hospital patients, but were he found doing so, his hospital would receive no grant from the Hospital Sunday Fund, one of the fundamental rules of the charity being as follows:—

"Any hospital the governors of which permit a medical officer to receive a fee from a patient of their hospital, for any services rendered while in the hospital, shall not be allowed to participate in the fund."

I do not believe that there is any physician or surgeon who would not with the utmost cheerfulness bestow his time or his skill to aid in relieving the sufferings of some poor clerk or distressed lady—even although the duty may have been inconsiderately thrust upon him by the Board of his Hospital; but I maintain that if pay-patients are to be taken into our hospitals at all, their circumstances should be rigidly inquired into, and none received, as such, save those who are absolutely unable to pay for, in their own houses, the advice and the nursing that they need.

But after all, why should it be necessary to burden a charitable institution with this class of patients? It is true that their means would not permit them to avail themselves of the advantages of the many private hospitals which already exist in Dublin; but we hope, perhaps before long, to see established in our city institutions which would meet their requirements—private hospitals, established as such, and in their construction and management thoroughly up to date. Such institutions exist in London, Berlin, and other places—some the result of private enterprise, and others worked by limited liability companies; and I believe that private hospitals, started upon the lines I venture to indicate, could be worked with profit to their proprietors, as well as with advantage to their clients. Such a hospital should have three grades of payment—first, second, and third class—and should have a fully qualified resident medical officer. First-class patients should have,

each, separate rooms, and should pay for their own nurses, whose services should be placed at their entire disposal. Second-class patients should be placed two or three in one room, and should be charged proportionately less than those in the first-class. Third-class patients should be six or eight in a room, and should be taken on as moderate terms as possible. In Berlin this can be done for 3s. a day. All patients should be equally entitled to the services of the resident medical officer, but should they desire any further advice they should be at liberty to employ any doctors they pleased *at their own expense*. I believe that private hospitals worked on these or similar lines would give general satisfaction both to the public and to the medical profession.

We now turn to the question of extern patients, but before doing so let us briefly review the provisions existing at present in Dublin city and suburbs for the outdoor medical relief of the poor. I would comprise in this table the North and South City, also Donnybrook, Rathmines, Clontarf and Howth, Coolock and Drumcondra, Finglas and Glasnevin, Palmerstown, Rathfarnham, Blackrock, Stillorgan, and Kingstown. This large district, from which the out-patients to the Dublin hospitals chiefly come, contains, according to the Census of 1891, a population of 356,240 persons. To what extent have they received medical aid gratuitously during a period of twelve months?

First, they have the poor law dispensaries, of which there are 27, officered by 30 doctors and 11 apothecaries, who, according to the last Report of the Local Government Board, attended 100,216 persons in one year. Then we have the hospitals—10 general hospitals and 14 special hospitals, in the out-patient departments, of which over 130,000 patients are annually treated, according to the return in Burdett's Hospital Annual, but the numbers are much larger, if we take the returns from the Reports as furnished by the different hospitals. The out-patients of a hospital may be classified under three headings:—

1. Accidents, treated as out-patients.
2. Midwifery cases, treated as out-patients.
3. Cases attending the hospital dispensaries.

Of the cases included under the first two headings accurate registers are kept, so that their numbers can be relied upon. The returns for the Dublin hospitals for the past year are:—

Accidents (extern) - - - - -	30,695
Extern Midwifery cases (Rotunda, Coombe, Sir P. Dun's) - - - - -	4,574
Total, -	<hr/> 35,269

The dispensary cases amounted to the enormous total of 218,475. These figures cannot, of course, mean individuals, but must include the *entire number of attendances* of each patient. How, then, may we arrive approximately at the number of individual patients treated in the hospital dispensaries? This may be done, I think, in three different ways, all leading practically to the same conclusion:—

1. By actual figures. In the Report of the National Eye and Ear Infirmary for the present year, we see (p. 19) that the number of new patients was 2,918, and that the total number of visits paid by old and new patients was 18,740. This gives us practically *six attendances* for each patient.

2. In Burdett's Hospital Annual for 1893, p. xciii., we have an estimate of the cost of out-patients at various classes of institutions; the cost for each out-patient in *general hospitals* in London, the provinces, Scotland and Ireland, he fixes at 1s. 6d. This again would give us about *six attendances*, if we allow the cost of medicine, &c., to be 3d. for each visit.

3. The class of cases that form the bulk of those seen at our general dispensaries are coughs and colds, sprains, disordered stomachs, &c., usually attending twice a week for about three weeks—that is, *six attendances*.

If, then, we divide the total number of attendances—viz., 218,475, by six, we get 36,412. This number, added to the accidents and midwifery cases before mentioned, gives a total of 71,681, which is probably very near the mark: and this last number, added to the total number of patients (100,216) returned as receiving poor-law medical relief, gives a total of 171,897 persons (or 482 to each 1,000 of the entire population of the district) receiving medical aid gratuitously, and that, too, excluding the large numbers who are annually admitted as intern patients to the various hospitals.

It is difficult to estimate the number of those who might fairly be considered entitled to gratuitous relief in the extern departments of Dublin hospitals; but if we look into the returns of the Registrar-General for the Census of 1891 we find a classification

which may help us. House accommodation is divided into four classes; the *fourth class* comprises the very poor, living in crowded tenement houses. This class contains, in round numbers, about 100,000 persons, in Dublin and its suburbs, and these are undoubtedly objects of charity. Their number corresponds very closely to the poor law returns just mentioned (*viz*, 100,216), and shows, at the same time, that liberal use is made of the privilege accorded to them.

Those occupying *third-class* accommodation in the better sort of tenement houses consist chiefly of artisans, most of whom are in "sick clubs" and "benefit societies," and cannot be regarded as paupers; at the same time they might fairly be permitted to avail themselves of the advantages offered in our hospital dispensaries, were they prepared to pay a small sum sufficient to prevent the charity being at a loss by them; and this, as a matter of fact, is the class which avails itself most largely of the out-patient departments attached to the Dublin hospitals.

To anyone making a tour of these dispensaries the following facts will be apparent:—

1st. The general air of respectability in the patients, the very poor class by no means predominating.

2nd. The invariable presence of a considerable percentage of persons who obviously should not be recipients of charity.

3rd. The very low percentage of serious or even interesting cases of disease presenting themselves for treatment.

4th. A number of familiar faces—old staggers—who spend their time aimlessly wandering from one dispensary to another, and when they are driven out of one, proceeding, as Mark Twain once put it, "to confer their disastrous patronage on some other firm." These may be frequently seen tasting each other's medicine, and making critical and sometimes uncomplimentary remarks upon the hospital and its staff. The evils of this indiscriminate charity are obvious.

In the first place, there is a direct pecuniary loss to the hospitals. It has been estimated that the cost of each out-patient is 1s. 6d., and when this sum has to be multiplied by thousands it becomes a very serious item in the annual expenditure. Let us illustrate this. Assuming the approximate number of 100,000 persons occupying fourth-class house accommodation to be a fair estimate of the absolutely poor who are entirely unable to pay anything for medical advice; if we subtract this number from the total of

those receiving extern medical aid from the Poor Law and the Dublin hospitals combined—viz., 171,837—we have remaining over 71,897. If we take, again, from this number the 11,897, assuming that these persons pay something at the few hospital dispensaries that do make a small charge, we have still, in round numbers, 60,000 free patients remaining, who, at the rate of 1s. 6d. per head, cost the Dublin hospitals the large sum of £4,500 per annum.

The second evil of this indiscriminate charity is the injustice that is done doctors and students. Our hospitals are essentially educational institutions. Instruction in dispensary practice forms a most important part of a student's education; but teaching becomes impossible if the limited time at the doctor's disposal be taken up with a crowd of trivial cases, such as form the bulk of those attending our dispensaries, and the work has to be rushed through in a perfunctory and unsatisfactory manner.

Thirdly, injustice is done to the benevolent public, who are paying twice over for the medical relief of the poor; not only through the rates, by which the poor-law dispensaries are supported, but also in subscriptions to hospitals for doing unnecessary and unprofitable work, for which ample provision has been made elsewhere. This wretched system must also have a debasing and demoralising effect upon the recipients of such charitable relief, nor can it be remedied till an accurate register be kept of the name, address, and occupation of each out-patient, in every general hospital, to be followed up, when necessary, by a rigid investigation into the circumstances of all doubtful cases; and further, all save the very poor should pay a small sum to defray the cost of medicine, &c. This plan is in operation in one of the leading general hospitals of Dublin, as well as in several of the special hospitals, and appears to work in a satisfactory manner.

I cannot expect for a moment that any poor words of mine are likely to revolutionise the management and administration of our great medical charities, but for a long time past I have felt it to be laid upon me as a duty to say out, however imperfectly, what I honestly believe regarding the abuse of the pay-patient system and of the out-patient system in our Dublin hospitals. It should not be possible that a country gentleman, with hunters in his stable, or that an officer in a cavalry regiment, should be permitted, for a nominal payment, to occupy a bed in a charitable institution, and to enjoy GRATUITOUSLY the services of its medical and surgical staff. It

should not be possible for a lady to attend for several months the dispensary of a Dublin hospital, and the fraud—for I can call it by no other name—only to be accidentally detected by a student, who happened to recognise, in the hospital patient, his hostess at a tennis party the previous week.

It would be easy to multiply instances of this kind, but it is needless to do so. The facts are notorious. The evil exists in every large city throughout the United Kingdom; and this being so, surely all rightminded people will join in reprobating the monstrous wrong that is done, by the abuses I have mentioned, to the members of an overworked and, as a rule, underpaid profession, by occupying their time and talents on objects undeserving of their charity; and also the injustice of diverting the contributions of the charitable and benevolent from their legitimate channels, to the encouragement of a shameless and fraudulent abuse of hospital charities on the part of the well-to-do, and to the countenancing of a chronic and unnecessary haunting of hospital dispensaries by the idle or hypochondriacal poor.

ART. XXI.—*Andrew Vesalius.* By GEORGE MATHESON CULLEN,
M.D., M.Ch. Univ. Edin.

(Continued from page 416.)

MUCH has been written with regard to the question of who was the artist that designed the original illustrations for Vesalius. As long ago as 1667 Des Piles^a ascribed them to Titian, and this opinion has been shared by Marchenbauer,^b Moechsen,^c Leveling,^d and others up to the present day. It is not, however, in the least likely that that artist, then over sixty years of age,^e and the favourite painter of Europe, unable to undertake the amount of work demanded of him, would devote his time and energy in embellishing a mere work of anatomy for an unknown dissector whose views were totally at variance with commonly-accepted traditions. Moreover, there is not the slightest contemporary

^a Abrégé d'Anatomie accommodée aux arts. Fol. Paris. 1667.

^b And. Vesalii Zergliederung des menschlich. Körp, &c. Fol. Augsb. 1723.

^c Verzeichniß einer Sammlung von Bildnissen, &c. 4to. Berlin. 1771.

^d Anatomische Erklärung der Original-Figuren Vesals, sammt einer Anwendung der Windlowischen Zergliederungs lehre. Fol. Ingolstat. 1783.

^e Titian was born in 1480 (Vasari) or 1477 (Mrs. Foster.)

evidence to support this opinion. Competent critics, however, claim that the portrait of Vesalius, the illustrated title-page, and the figures of Venus and Hercules, bear the clear impress of the school of Titian, and there is one of this painter's pupils, whom we have already mentioned as the designer of three out of the *Tabulæ sex* (see *Dublin Journal of Medical Science*, March, 1894, p. 227)—I refer to the Fleming, John Stephen, of Calcar.^a But what about the plates in the Anatomy and the Epitome? Who designed them? Calcar went to Naples in 1539, and Vesalius, in his *Epistola de Vena Secunda*, published in that year, declares that he can expect no more assistance from that source. But it is possible that Calcar may have made some of the designs before he left. Vasari, in his "Lives of the Painters," published in 1568, lends colour to this view; he says: ". . . They were executed in a very good manner of engraving; as were also the *eleven large plates* of anatomical studies which Andrea Vesalio engraved *after the designs of Giovanni di Calcare*, a most excellent Flemish painter."^b E. Turner^c has very ingeniously pointed out that the plates in the Epitome are larger than those of the Anatomy, and that being eleven in number, they are probably the plates indicated by Vasari. These include the beautiful nude figures of Hercules and Venus, which give the best opportunity for the display of the abilities of the artist. But assuming that Calcar illustrated the Epitome, the question still remains, Who made the designs for the Anatomy? Vasari would lead us to infer that the artist is the same. "Among these about Titian," he says, "was a certain Giovanni, a Fleming. . . . By his hand—and they must do him honour for all time—were the designs for anatomical studies which the most admirable Vesalio caused to be engraved on copper^d and published with his works."^e Elsewhere we read:—

"The anatomical drawings for the work of Vesalio were made by Calcar."^f But, on the other hand, we know that Calcar

^a Also known as John the Fleming, John Calker or Calcar, &c. Much confusion has arisen from the different names under which this painter has been mentioned. Some have thought that they indicated different individuals.

^b Vasari's Lives. Trans. by Mrs. G. Foster. 5 vols. (Bohn.) Lond. 1851. Vol. III., p. 519.

^c Gazette Hebdomadaire de Médecine and de Chirurgie. Paris. 1877. No. 28.

^d This is a mistake, as they were engraved on wood for the Anatomy.

^e Mrs. Foster's Translation. Vol. IV., p. 402.

^f Op. cit. Vol. V., p. 459.

went to Naples in 1539. Moreover, there is the definite statement by Vasari of the composition of eleven designs which would have absolutely no meaning if Calcar were the author of all. It would seem, as Turner^a has suggested, that Calcar had made several designs from dissections in view of the book that the anatomist was writing. As time went on Vesalius found these designs to be scarcely fitted for the *De Corporis Humani Fabrica*. They were, however, printed probably in 1540 or 1541, and distributed among the students, and finally were bound along with some pages of letterpress to form the *Epitome*. Proof, at all events, is wanting that Calcar was the artist of the Anatomy. Nor is there any other artist whom we can suspect. Undoubtedly many painters took advantage of the unrivalled means of learning anatomy offered them by Vesalius, who, indeed, complains that they hampered him in his dissection, and annoyed him in many ways. Among these may have been the illustrator of the Anatomy, but the suggestion naturally arises that Vesalius, having published already some designs of his own, might well do so again, and thus be his own artist. And the more this idea is considered the more feasible it appears. Fallopius and others have referred to the structures which Vesalius had described and *drawn*. Our anatomist himself speaks in similar terms; as, for instance, where he says, "Venam arteriamque seminales, delucide scripsi et pinxi,"^b and at the end of his letter to Roelants he complains of the imitations which had been made of the designs prepared by his own skill.^c Burgraave also has come to the conclusion that Vesalius was his own draughtsman, and he adds that "this opinion acquires greater value when we remember that almost all the great anatomists have also been excellent designers. The reason is easily apprehended. There is between the anatomist and the artist more than one bond of sympathy, called, as they both are, to be inspired by the marvels of the organisation. We could hardly conceive of an anatomist who was not profoundly touched with the beauty and harmony of contour and form, and, in painting as in drawing, to feel is to be already an artist."^d

To Vesalius, then, we owe not only the immortal text of the great Anatomy, but to him also must in all probability be ascribed the

^a Loo. cit.

^b *Vesalii Opera Omnia*. 1725. P. 821.

^c *Vesalii Opera Omnia*. 1725. P. 681.

^d *Burgraave. Etudes sur Vesale*. P. 75.

beautiful illustrations,^a and taking the plates, and considering them apart from the book, the service they rendered has been immense. I have already referred to their influence on the general history of art, but they were of particular value to the student of that time, when dissections were rare, and undoubtedly they elevated the tastes of anatomists, and made them reject the coarse illustrations which had served their purpose up till that time.

Vasari, in a passage already quoted,^b speaks of Vesalius as engraving the designs himself, but this is certainly a mistake since in his letter to Oporinus (prefixed to *De Hum. Corp. Fabrica*) he makes a reference to the Venetian workman whom he employed. What was the name of this engraver is unknown; it is often said that Calcar was an engraver as well as a painter, and Vasari is usually made the authority for this statement. This is not the case. Vasari does mention Calcar in his chapter upon engravers, but he merely instances him as an artist who designed for engravers, not as an engraver himself.

With regard to the character of Vesalius, how he acted, spoke, and thought, how the outward man appeared to his contemporaries, there is but little known. There exist some ten or more so-called original portraits of him, and of these I have seen three—that of the Louvre, that at the College of Physicians, London, and the one in the Hunterian Museum in Glasgow. The picture at the Louvre was, until a few years ago, attributed to Tintoretti, but it is now catalogued as Calcar's. There can be little doubt as to the great beauty of the painting, but it would scarcely be recognised as Vesalius by those who are familiar with the portrait in his Anatomy. Indeed, there is a painting by Titian (*in homme inconnu*) in the same collection which to my mind more closely resembles our anatomist. It was Ch. Blanc who in 1867 first suggested^c that Tintoretti's painting represented Vesalius, and was really from the brush of Calcar. He pointed out that the subscription on the painting—“anno 1540, a statis 26”—corresponded

^a Roth (*op. citat.*) while admitting that Vesalius designed some of the plates, thinks that others could have been executed only by a professed artist. This author's article—“Abbildungen der Fabrica und Epitome” (p. 155–180) sums up very well all that can be said on the subject. If the volume in the Hunterian Museum, Glasgow (Vesalius' Original Anatomical Drawings) could be traced to its source, some light might be shed on this obscure point.

^b “Which Andrea Vesalio engraved after the designs of Giovanni de Calcare,” Mrs. Foster's Trans. Vol. III., p. 519.

^c Charles Blanc. *Histoire des Peintres (art. Calcar)*. 4to. 1867.

with the age of the anatomist, and that on his ring were to be made out the letters M. V. B., which he interpreted *Magister Vesalius Bruxellensis*. Inquiry showed that the painting had been originally received as the work of Calcar, and E. Turner^a at a later period (1877) again tried to prove that the man was Vesalius.

Apart altogether from the difference in appearance Turner has failed to explain why the coat of arms should have three poppy-heads. He argues, indeed, that this is the correct escutcheon of Vesalius, but in opposition to this we have the word of the anatomist himself, and the representation of the three weasels in the coat of arms in the *Epitome* and in the *Anatomy*. The initials on the ring Turner reads as A. V. B. (*Andreas Vesalius Bruxellensis*), but this does not clear matters, and the unprejudiced will probably agree with the title of the picture still found in the catalogue—"Portrait d'un homme inconnu." The painting in the Hunterian Museum in Glasgow was purchased by Hunter at the sale of Dr. Meade's collection. Of its origin nothing is known, but it is generally attributed to Calcar or Titian, and it is said to be the original of the woodcut in the *Anatomy*. The portrait in the College of Physicians, London, somewhat resembles this in style, and may have been a copy.

All these portraits, however, differ from that which appears in the *Anatomy* and *Epitome*, and which we must take as authentic and trustworthy. It shows us the anatomist in the act of demonstrating the muscles of the arm of a woman. His face is open, strongly-marked, and almost handsome; the brow is massive and commanding, the eyes large and expressive, the nose long and *retroussé*, the lips full. He wears a moustache and a crisp curly beard, while his head is covered by short-cut curly hair. The hands are finely formed and delicate. It is perhaps difficult to read a countenance free of known facts or encumbering prejudices, but I think most people would easily recognise the portrait of a studious and thoughtful man—one who would take strong views and strongly enforce them, one not innocent of the natural pride which earnest work must bring, a man of strongly artistic temperament. He himself tells us^c that he was troubled with indigestion,

^a E. Turner. *Gaz. Hebdomadaire de Médecine et de Chirurgie*. Paris. 1877. No. 28.

^b F. Villot (*Notice des Tableaux*, 1874) gives still another reading—N. V. B.—but he has no theory as to the identity of the portrait.

^c *De Human. Corp. Fab. Lib. V. Cap. 8.*

and we read that his disposition was of a melancholy turn, and that as he waxed old he became too solicitous about his health.*

Apart from pride almost the only fault his contemporaries imputed to him was avarice. As instances of this are brought forward his lending money to the Flemish nobles at Madrid, and his refusal to pay the bribe at Perpignan. It is also stated that his meanness induced him to travel to Jerusalem with pilgrims instead of journeying in the style befitting his rank, and that he put in such a slender store of provisions for his return voyage that he was literally starved before he reached Zante. But let us look into these charges more closely. Clusius does not tell the rate of interest at which Vesalius gave out his loans, and there is nothing to indicate that this was a form of transaction usual with the anatomist. It may well be that his Flemish friends, knowing that he was realising his property, dunned him for a loan of money of which he had no immediate use, and which he was about to send off to Brussels. Foreseeing the doubtful nature of his trust he may have asked for a high rate of interest to indemnify him for probable losses. His refusal to pay the bribe at Perpignan was probably due to the natural pride of the man and his detestation of such underhand dealing—sentiments which have made many an upright man, before and since, suffer rather than submit. I have already animadverted upon the notion that Vesalius went to Jerusalem to gain money, and I need only remark here that he travelled with the pilgrims very naturally because he was of their company, and was engaged in a pilgrimage. Finally, it must be admitted that the return voyage was protracted beyond all reasonable expectation (forty days), and that it was little wonder if his provisions ran low. Roth has very well pointed out that while there is but slight evidence to show that Vesalius was avaricious there is ample proof that he was the reverse. With regard to his Anatomy in particular, he was lavish in his expenditure. He knew full well how hostile would be the reception accorded it, and that its chances of success were very problematical, and yet such was his desire to show anatomy in its proper light that he copiously illustrated it—nay, even went out of his way to spend money in adorning and beautifying it.

Brought up in the most Catholic of schools, and having spent the greater part of his life in the most orthodox of courts, Vesalius was a strict Catholic. The quarrel which Boerhaave has tried

* R. Solenander in *Vergnigung Müssiger Stunden*. Quoted by Roth.

to substantiate* between him and the clergy of his church is purely imaginary. He lived on the best terms with eminent ecclesiastics, his writings everywhere testify to his deep religious feeling, and the last act of his life was one expressive of a devotion purely Catholic.

Such was Vesalius, and such the mighty influence he exerted over his contemporaries, and those of a later time, in anatomy, in general medical progress, and in art.

His works on Galen and on drugs, and his complete translation of Rhazes, were burnt by him in his vexation at the attacks made upon him and his teaching. His published works include :—

1. Paraphrase upon the ninth book of Rhazes, 1537.
2. *Tabulæ Anatomicae Sex*, 1538.
3. Edition of Guinter's Anatomy, 1538.
4. His letter upon Blood-letting in Pleurisy, 1539.
5. Revision of Greek Text of Galen (published by Junta), 1541.
6. His Anatomy, 1543.
7. The Epitome, 1543.^b
8. The Letter to Roelants on the Chyna Root, &c., 1546.
9. The Examination of the Observations of Fallopius, 1564.
10. Various Concilia^a—(a), to Montanus; (b), to Pfisterus; (c), to Ingrassias; (d), to Forrestus; (e), to Garetus; (f), to Scholtzius.
11. *Chirurgia Magna* (edited by Borgarutius, 1568).

A complete edition (in 2 vols.) of the works of Vesalius, prefaced by a lengthy though somewhat incoherent biography, was published by Boerhaave and Albinus in 1725 and 1726. The engravings are beautifully reproduced by the skill of Wandelaar. This edition includes the Apology of Cuneus (ascribed to Vesalius), but does not contain the Paraphrase on the ninth book of Rhazes, the Sex Tabulæ, the Letter upon Blood-letting, or any of the Concilia.

The existence of the *Tabulæ Sex* does not seem to have been recognised by Boerhaave and Albinus, and even recent writers appear to be unaware of its existence. Vesalius, in his letter to

* A. Vesalii. *Opera Omnia*. 2 vols. Luy Bat. 1725. Pref.

^b Most agree that the Epitome was published before the larger work. An expression in the Anatomy (1543 lib. III., p. 267) seems to confirm this—"uti in mea Epitome factum cernis." Both appeared in the same month, "mense Junio, 1548."

* The concilia are collected by Roth in his book on Vesalius.

Oporinus, complains bitterly of the copyists of his plates. Didot^a seeks to explain this by assuming that there was an earlier edition of the Anatomy privately printed in 1539, and that it was owing to an infringement of its copyright that Charles Etienne (Stephanus) was prevented from publishing his illustrated Anatomy till 1546. Brunet,^b who also inclines to the idea of an edition previous to 1543, thinks it was published in 1538, at the same time as Guinter's Anatomy. But such suppositions have no basis in fact, and there can be no doubt that the work copied was the *Tabulae Sex*. Vesalius complains of the reproductions made at Augsburg, Cologne, Paris, Strassburg, and Frankfort, and almost all these have been traced. The first^c refers to the reproduction made by Johannis Necker (Haller), or Lobst de Necker (Choulant), in 1539. At Cologne in the same year Macrolios^d made use of a diagram which he mentions as belonging to Vesalius; it was not included in the *Tabulae Sex*, but afterwards appeared in the Anatomy (1543, p. 319). The pirated copies printed at Paris cannot now be traced; but the use of all or certain of the plates can be easily seen in the works of Dryunder, published in Marpurgi^e and Frankfort,^f and of W. H. Ryff,^g printed at Strassburg. It is little wonder that such wholesale appropriation of his work made Vesalius complain so bitterly.

The *Tabulae Sex* were not used among the illustrations of the Anatomy or the Epitome.

The Anatomy, the great and lasting masterpiece of Vesalius, was published in Basel, from the press of Oporinus, in June,

^a G. F. Didot. *Essai typographique, &c., sur l'histoire de la Gravure.* 8vo. Paris. 1868. P. 91.

^b Brunet. *Manuel du libraire et de l'amateur des livres.* Paria. Vol. V. P. 1151.

^c Ein gar künstlich, allen Leib und Wundarzten nützliches Werk in 6 Figuren. Fol. Augsbourg. 1539.

^d Aegidius Macrolios. *Cerebrum animalis facultatus fons et principium, sensuum voluntarium, &c.* (No date or place.) Fol. (Cologne. 1539).

^e Joh. Dryundri. *Anatomia Mundini, ad vetust, eorundemque aliquot manus . . . collata, &c.* Marpurgi in officina Christiani Egenolphii. At end—(date) 1541. Fol.

^f Der ganzen Artzenei Inhalt. . . . Franckfurt am Meyn bey Christian Egenolff. 1542. Mense martio. Fol.

^g Des allerfürttrefflichsten, höchsten und adelichsten Schöppfis aller Creaturen, &c. Durch M. G. H. Ryff. 1541. On last page—Strassbourg bey Balthasar Beck. In fol. This contains 25 plates; some are copied from Dryunder's work, and the three views of the skeleton are rudely imitated from the *Tabulae Sex* of Vesalius.

1543.* The folio volume is numbered to 659 pages, but really contains 759, for by a printer's error the page after 312 reads 21³, and this erroneous numbering is continued to the end of the book. Like many other specimens of early printing this folio is got up with great beauty of workmanship and tender care of detail. It has been customary to contrast unfavourably this edition with that issued from the same press in 1555.^b This latter, which was revised by Vesalius, contains a larger number of folio pages, 824; but this does not represent much additional matter, for the type is larger and the spacing broader. There is a slight alteration in the engraving of the title-page, but the other engravings are identical with those of 1543. Indeed, the differences between the two editions will be found very trifling and unimportant. Another ^{Sopras:} edition^c in smaller form was published at Louvain in 1552. In Venice two reproductions were issued—one in 1568,^d and the other in 1604;^e the plates in both are copied by John Crieber, and are smaller than those of Vesalius, and by no means so artistic. Other editions appeared at Basel in 1563,^f at Paris in 1564,^g and at Figur in 1551 and 1573,^h but these I have not been able to see.

The excellence and value of the plates of the Anatomy were so readily recognised and appreciated that many reproductions of them were made. As a general rule the engravings of the Anatomy and the Epitome were published with the text of the Epitome. Such were the editions of Gemini in 1545, 1553, and 1559. In the letter to Roelants, Vesalius speaks in rather slighting terms of the work of Gemini, but undoubtedly the engraving is of a high order, and indeed the plates were used by Grevin, who reprintedⁱ

* In the Casanatense Library at Rome I found a copy, date 1542, but this was, probably, a printer's error,

^b And. Vesalii Bruxellensis. Invictissimi Caroli V., Imperatoris Medici, De humano corporis fabrica. Libri VII. Fol. At end—Basileae ex officina Oporini. 1555.

^c And. Vesalii Bruxellensis. De humano corporis fabrica. Libri VII. Ad Carolum Quintum. 12mo. 2 vols. Lugd. Apud Johan. Tornesium. 1555. Wants dedication to Charles and letter to Oporinus.

^d And. Vesalii Brux. Invict. Carol. V., Imp. Medici. De humano corporis fabrica. Libra VII. Fol. Venitiis. Apud Franciscum Senensem. 1568.

^e Andreas Vesalii Anatomia. Venitiis. Apud G. & A. de Trav. Fol. 1604. In this folio the Anatomy of Vesalius is followed by extracts from Soranus, Rufus, &c.

^f Quoted by Portal. Hist. de la Med. Vol. I. P. 399.

^g Anatomes totius corpore insculpta delineatio, cui addita est epitome A. Vesalii . . . per Jacobum Grevinum—ex offic. And. Wecheli. Lut. Paris. 1565. In fol.

Gemini's book in 1565, and in 1569 issued a French translation.^a This latter book is interesting, inasmuch as it was by means of it that Ambrose Paré, who could not read Latin, was introduced to the works of Vesalius. Similar in character to these are the folio editions of Paris, 1560;^b Coloniæ, 1600;^b Leyden, 1616;^b and of Amsterdam, 1617^c and 1642,^d the latter with notes by Nicholas Fontanus. In quarto form it had been previously published at Amsterdam in 1633, with notes by Paaw.^e A very rare book is the first German translation^f of the Epitome (with the original large engravings), published at Basle by Johann Herpst (i.e., Oporinus) in 1543. Plantinus, at Anvers, published two editions in folio identical with that of Gemini—one in 1566,^g and the other in 1572, and to him is due a Flemish translation.^h A German translationⁱ with the same plates was published by Bauman in 1551.

I cannot hope that I have exhausted in the above list all the editions of our anatomist's works, but to go further and enquire what books assimilated and used some or all of his plates for their own purposes were a task which would greatly lengthen a paper which has already waxed too long. Those who are interested in the question—and it forms quite a chapter in the history of art—must be referred to the works of Leveling,^j Chouulant,^k &c.

The Epitola de Radice Chinæ Usu, which first appeared at

^a Les portraicts anatomiques, gravées en taille-douce, par l'ordre de feu Henry VIII., avec l'abrégé d'André Vessel. Trad. du Latin. Par G. Grevin (and Wichel). Fol. Paris. 1569.

^b Quoted by Portal. Hist. de la Med. Vol. I., p. 399.

^c Vesalii Anatomia Iconibus Illustrata. Fol. Amstel. 1617.

^d Lib. And. Vesalii Brux. de Hum. Corp. Fab. Epitome: cum annotationibus Nicolai Fontani Amstelodamensis. Amstelodami apud. Joan. Jansonium. 1642. In fol.

^e And. Vesalii Brux. Epitome Anatomica. Opus redivivum cui accessere notaæ ac Commentaria P. Paaw. Apud Henricum Laurentii. Amstelodami. 1633. 4to.

^f Von den Menschen Körpers Anatomey, ein Kurtzer Anszug. D. Andreas Vesalii von Brussel Buecharn, durch D'Albanum Torinum Verdeutscht. Gedruckt zu Basel, bey Gohann Herpst. Fol. Goth. 1543.

^g Vivæ Imagines partium corporis humani æris formæ expressæ, &c. Fol. Anvers. 1566.

^h Anatomie oft Levende van de deelen des menschelijken lichaems: mit de verclaringhe van dien in de nedarduytsche Spraecke, bey Christoffel Plantin. Fol. Antwerpen. 1568.

ⁱ Anatomia Deutsch . . . aus den buschern des H. H. D. Andreæ Vesalii. Gedruckt zu Nurnberg beim Gul. Paulo. Fabricio. Fol. 1581.

^j H. P. Leveling. Erklärung der Original. Figuren von A. Vesals. Ingolstadt. 1783.

^k L. Chouulant. Geschichte der Anatomisher Abbildung. 4to. Leipzig. 1862.

Basel in 1546, was reissued from Venice in 1546, and from Lugduni in 1547. The Examination of the Anatomical Observations of Fallopius was first published at Venice in 1564, but other editions appeared at Hanoviæ in 1609, at Marnium in 1609 and again in 1610.*

A few words in conclusion upon Vesalian bibliography. Sketches of the life of the anatomist are to be found in the works of Adamus, Castellanus, Blount (*Censura Celebrium*), and Boerhaave, and he is described at some length by Lauth and Burgraave in their books on the History of Anatomy. Prof. Henry Morley (*Frazer's Magazine*, Nov., 1853), Kingsley ("Historical Lectures and Essays"), and Sir B. W. Richardson (*Asclepiad*, 1885), have written interesting memoirs of his life, and Burgraave has published a lengthy *brochure* entitled "*Études sur André Vesal.*" But it is needless to mention more, for Prof. M. Roth, of Basel, has lately published a most exhaustive volume ("*Andreas Vesalius Bruxellensis*," Berlin, 1892), which contains very valuable and accurate information regarding the great anatomist and his epoch and work. Herein will be found a very complete list of all books having reference to Vesalius—a catalogue so nearly complete that I may be pardoned for adding to it a few which have been overlooked: Mersman's *Eloge de Vesale*, Bruges, 12mo., 1845; Weynant's *Elogium Vesalii*, Louvain, 8vo, 1846; and a study by Demetrius Securo, published at Florence in 1861. I end with the lines of Johan. Posthius:—

" Multa prius medicos nondum observata latebant,
 In varia humani corporis historia;
 Singula Vesalius scrutans oculisque manuque,
 Perfectum hoc longo tempore fecit opus.
 Nec tamen scriptis haec explicat omnia libris,
 Sed vivis etiam monstrat imaginibus;
 Nominis inde tulit famam, laudemque perennem,
 Haec veteres superans arte, simulque novos."

* Portal (*Hist. de l'Anatomie et de la Chirurgie*. 8vo. Paris 1770). Vol I. P. 400, mentions an edition at Madrid, of date 1561 (the year in which the examination was written). This I have been unable to verify.

ART. XXII.—*An Unusual Case of Graves's Disease.** By JAMES CRAIG, M.D. Univ. Dubl., F.R.C.P.I.; Physician to the Meath Hospital.

THE patient whom you have just examined, and the drawing and photograph which I send around, are those of a girl suffering from Graves's disease, who came under my care in the Meath Hospital on May 11th, 1893. She was twenty-five years of age, unmarried, and had been in employment as a general domestic servant until December, 1892. During the summer of that year she had suffered from anaemia and palpitations, and had noticed her neck becoming enlarged; then in November menstruation ceased, and after a month of severe frontal neuralgia the eyes became prominent. There was no history of fright or mental emotion, or of any family neuroses. In January, 1893, she went to the South Dublin Union Hospital, where she fretted much, and after a time found her eyes become more prominent, and then red and painful. When she came under my care in the month of May her eyes were in a most alarming condition, of which the drawing and photograph give only a very imperfect picture. The eyeballs were markedly prominent, and the lower half of the bulbar and palpebral conjunctivæ of each eye formed a red protruding mass which buried the edge of the lower lids completely beneath it. The lower portion of each cornea was ulcerated, there was no anterior chamber, and in the right eye a small mass which appeared to be the lens lay on the swollen tissues. The upper lids were freely movable, and the conjunctiva underneath was red and congested, but free from chemosis. The sight was gone except that she could distinguish light from darkness. Pain was so intense that she had not slept at all for nearly the whole of the previous week.

With regard to other symptoms. Her pulse varied at short intervals from 120 to 170 per minute; the heart was weak, irregular, slightly enlarged, and with a pulmonary systolic murmur. The thyroid enlargement was not great, but was symmetrical, and about the size of a small orange on either side, while pulsation and bruit in it were distinct. She was very nervous and excitable, and her hands and arms especially showed a constant tremor. She had suffered before admission from an exhausting diarrhoea, and complained of feeling weak and tired. The body was emaciated, and the mammary glands atrophied. The chest movements were much restricted during respiration—a symptom which has lately been pointed out by Bryson, of New York. She perspired freely from slight causes, and her skin always felt hot. The urine contained a trace of sugar, but no albumen. The skin was not pigmented

* Read before the Medical Section of the Royal Academy of Medicine in Ireland on Friday, May 11, 1894.

except on the upper lids, and the appetite was small on admission, but afterwards it became voracious.

The condition of the eyes, however, was the special feature of the case, and one which called for immediate relief. Dr. Johnston kindly saw her with me, and divided the outer canthus of each eye with a pair of scissors; then on the following morning he made several incisions in the swollen mass of each eye by transfixing it with a narrow cataract knife from the corneal margin to the edge of the lower lid. The bleeding which followed considerably reduced the swelling, and as division of the canthi had allowed the eyeballs to protrude still further, the patient was so much relieved that she slept well that night. The remainder of the treatment consisted in the application of warm boric lotion, and subsequently the globe was covered by gold beater's skin on which a little boric ointment was spread. There was no active spreading ulceration of the cornea, and Dr. Johnston thought "the ulceration was partly due to exposure, and partly, perhaps, to pressure, although it was difficult to understand how the latter could act on the nourishment, nervous or otherwise, of only one half of the cornea." His idea in carrying out his line of treatment was that he would reduce the pressure on the globe, cause the eye to retract, and above all make the patient more comfortable. He also feared, if the eyes were left in the state of congestion or strangulation which was present, that pan-ophthalmitis would set in. The result was satisfactory in so far as it averted destruction of all the tissues of the eye and gave relief to the girl, but although the swelling somewhat diminished at the time, and acute symptoms subsided, the ulceration extended to the upper part of the cornea, and as the sight did not return and the swollen red mass still persists to some extent at the end of a year, it has been found necessary to place the girl in an asylum for the blind.

In the records of the numerous cases which I have examined, I can find no evidence that any eye complication so serious as this has ever before been observed. Gowers says:—"When the lids fail to cover the eyes, these are often dry in the morning—corneal inflammation is sometimes met with, apparently due to imperfect protection of the globe when the lids fail to meet; conjunctivitis is not rare, and occasionally there has been opacity of the cornea, and even sloughing, generally in both eyes, but in one before the other. Cœdema of the lids is occasionally present, and may be associated with cœdema of the conjunctiva." And Mr. Swanzy, in his Handbook on the Eye, says:—"The sensibility of the cornea is lessened. Ulcers of the cornea are not common, but are more often seen in men than in women. The exposure of the eye and

the dryness of the cornea are probably to a great extent the cause of ulceration when it occurs ; but Sattler inclines to the belief that it is also largely due to paralysis of the nervous supply of the cornea."

In a paper by Dianoux on "The Ocular Lesions in Exophthalmic Goitre," read before the International Medical Congress at Copenhagen, in 1884, he expresses the opinion that stretching of the ciliary and optic nerves by the exophthalmos produces the internal eye lesions, which he classes under three heads—1st, the effects on motor organs, namely, dilatation of the pupil and paralysis of accommodation ; 2nd, the effects on nutrition, namely, neuro-paralytic keratitis, papillary oedema and irido-chorioiditis ; 3rd, the effects on sight, namely, mist, shimmering, and finally amblyopia.

While I have gone so fully into eye complications in this affection, it may be well to mention in detail the more commonly observed ocular phenomena—1st, exophthalmos, which is present in about 90 per cent. of the cases, and which may be unilateral or bilateral, or more marked on one side than the other, and which varies in degree according to the heart action ; 2nd, von Graefe's lid-sign or impairment of the consensual movement of the upper eyelid in association with the eyeball on the patient looking downwards, and a modification of this has been noticed by Ramsay in the form of a spasmodic retraction of the upper lid after an imperfect descent ; 3rd, Stellwag's sign, which consists in an incompleteness and diminished frequency of the involuntary act of winking ; 4th, Dalrymple's sign or abnormal widening of the palpebral orifice, which is due to retraction of the upper lid—very rarely the lower lid has been retracted also ; 5th, Möbius and others have observed paresis of the muscles that move the eyeballs, and even complete ophthalmoplegia has been noted ; 6th, Tremor of the lids and tremor of the eyeballs have both been noticed, the former of little significance, as it is often seen in people in health, the latter a nystagmus which probably corresponds to the tremor of the body and limbs.

In this case of my own there was no secretion or appearance of acute inflammation, but the condition resembled rather that seen in the case of strangulated haemorrhoids. And although there is some obscurity as to the cause of this serious complication, and as to its method of onset, we have at all events learned this lesson from it, that in all cases of Graves's disease where the exophthalmos

prevents the lids from meeting over the eyeballs, every precaution should be adopted by the medical attendant to lessen the corneal exposure and reduce the proptosis. The methods that have been found useful for these purposes are, tightly applied muslin handages over the eyes, the application of tincture of iodine to the upper lids, and when the protrusion is very great, the eyelids may be stitched together, or even, in order to lessen the palpebral orifice, the upper and lower lids should be united in the region of both commissures, by vivifying their edges for some distance and stitching them together so as to bring about a permanent union. However, it is only right to mention that a young girl who was undergoing an operation of this sort died suddenly on the operating table at Guy's Hospital, in June, 1873, but this untoward result may scarcely be taken to prove more than that a tendency to sudden death exists in exophthalmic goitre.

Since the three cardinal symptoms of this affection were first grouped together by Graves as a separate and definite malady, many additional symptoms have been described, some of which, like tremor, are almost constantly present, while others are found with more or less varying frequency. I cannot enter upon these at present, but most of them have been mentioned by Dr. Foot in his particularly interesting and instructive lecture on Graves's disease which appears in the second series of International Clinics. He there also calls attention to the undoubted right of associating with this malady the name of its discoverer—Graves—rather than that of Basedow. So that it is interesting to find, in the most recently-published German treatise on Exophthalmic Goitre, an admission by the author, Dr. Mannheim, of Berlin, that in studying the history of the affection he discovered that Graves had known, recognised, and described the disease before Basedow, and that therefore one could not refuse to give him the priority and name the disease after him, "*Morbus Gravesii*," and this he adopts as the title of his work.

I could not attempt, within the space of a short paper, to discuss fully the various theories that have been put forward with regard to the pathology of this perplexing disease. But while it is almost universally accepted by writers on nervous diseases, and by pathologists generally, that the symptoms owe their origin to a functional or organic lesion of the central nervous system, but especially to that part of it—viz. the medulla oblongata, in which are situated the cardio-inhibitory, vaso-motor, respiratory, and other

involved centres, there are at the present day not a few who, following on the lines of Möbius, consider that the starting-point in the affection is the altered condition of the thyroid gland which, either by a hypersecretion or altered secretion, disposes of toxic agents to the blood, which in turn produce functional disturbances or minute pathological changes in the central nervous system. This latter view has lately received more attention on account of the recent researches that have been made in regard to the functions of the thyroid gland, but chiefly in regard to its atrophied state in producing the condition known as myxœdema, and to the highly successful results that have followed the treatment of this latter disease by some preparation of the gland itself when procured from animals.

In the first place I would mention briefly that the researches of Mr. Victor Horsley have gone to prove the importance of the thyroid gland as a blood-forming and metabolic agent. He says it forms, or rather secretes, from the blood a colloidal substance which is transmitted by the lymphatics from the acini of the gland back to the circulation, and that it is of special metabolic importance in early extra-uterine life, as shown by the more fatal effects of thyroidectomy in young animals as compared with older ones, so that its value falls as the general vital processes decrease. Its great importance in relation to health is shown by the effects that follow its removal in animals. These are—(1) a diminution in the corpuscular elements of the blood, and in the amount of its oxygen, with the presence of abnormal constituents in the plasma, such as mucin; (2) a general toxic state of the blood, which gives rise to excitatory and subsequently paralytic changes in the central nervous system, which are in turn evidenced by tremors, spasms, rigidity, and afterwards motor and sensory paralysis; and, in the third place, derangement of nutrition follows, as shown by emaciation, increase of mucin in the subcutaneous tissues, and even later, fibroid increase, with heat changes also, in which the temperature is at first above and afterwards below normal, and in which the symptoms are aggravated by cold and ameliorated by heat.

So much, therefore, for the importance of this gland in the preservation of the economy of the body. Undoubtedly there is an increase or perversion of its functions in Graves's disease which one might readily assume to be the cause of many of the secondary symptoms, but those who support the view—among whom are

Professor Greenfield and Dr. Byrom Bramwell, of Edinburgh—that the primary source of the malady has its origin in the altered gland, reason from the following data:—

1. The pathological state of the thyroid in exophthalmic goitre.
2. The presence in the nervous system—particularly in that part of it which, from the symptoms, one would suspect to be involved—of slight but widespread changes which are of a like nature to those seen in toxic diseases, such as hydrophobia and tetanus, and therefore suggesting that these changes in Graves's disease may also be of toxic origin.
3. A comparison of the clinical features of myxœdema, in which the gland is atrophied, with those of exophthalmic goitre, in which it is enlarged.
4. The beneficial effects on the disease of partial thyroidectomy.
5. The beneficial effects which follow medical treatment directed to reducing the size of the goitre.
6. The correspondence, in some important respects, of the phenomena of Graves's disease with those produced by artificial introduction of the thyroid secretion.

With regard to its pathological structure, Drs. Grainger Stewart and Gibson reported, at the British Medical Association, last August, the result of *post-mortem* examinations which had been made in three cases. And Prof. Greenfield, in "The Bradshaw Lecture," delivered before the Royal College of Physicians of London last November, recorded the result of his observations on six fatal cases.

In every instance there was a marked increase in the secreting structure of the gland, which Professor Greenfield considered bore the same relation to the normal gland as that which the mammary gland in lactation bears to itself when in a state of quiescence, and, in peculiar contrast to what has generally been accepted, the gland was found not to be very vascular—at least, the increase in vascularity was not more than is met with in a secreting mammary gland. Greenfield points out that great increase in the secreting tissue and greatly exaggerated function may be present without notable increase in volume. In advanced stages of the disease fibrous overgrowth may replace the secreting structure, and in that case one might expect a subsidence of the symptoms; or even if the glandular atrophy is extreme, myxœdema may ensue—a sequela which, it is true, has been sometimes observed. Coming to the next point in the argument. Although the changes found in the

nervous system are not by any means constant, still minute haemorrhages and degenerative changes are frequently met with which closely resemble the conditions that are observed in diseases like tetanus and hydrophobia, which are believed to be of toxæmic origin.

In contrasting the clinical features of myxœdema with those of Graves's disease, the following points are called attention to:—

In Exophthalmic Goitre.

1. The gland is hypertrophied.
2. Young women are affected.
3. There is hyperexcitability, nervousness, tremors, and unrest.
4. The skin is soft, smooth, moist, with excessive perspiration and diminished electrical resistance.
5. There are subjective sensations of heat (flushing) with easily produced elevations of temperature.
6. The pulse is frequent.
7. There is marked emaciation.
8. Amenorrhœa is common.
9. Marriage and pregnancy may cure.
10. Mental disorder more usually takes the form of acute mania.

In Myxœdema.

1. It is atrophied.
2. Older women suffer.
3. The patient is stolid and placid.
4. The skin is dry, harsh, rough, no sweating, and increased electrical resistance.
5. There is a feeling of coldness with subnormal and unvarying temperature.
6. It is slow or infrequent.
7. There is increase in weight and bulk.
8. Menorrhagia is more common.
9. Pregnancy very rare, but when it occurs patients get worse.
10. Melancholic delusions are more often met with.

We next come to consider the beneficial effects of partial thyroidectomy.

Stierlin collected 29 cases in which portion of the gland was removed, and in 22 of them complete recovery ensued. Wette collected 26, that he considers "undoubted cases," in which removal of portion of the gland was followed by considerable improvement, and often by a distinct cure—in fact, he says that the

altered gland is the cause of the disease, and that operation is the only satisfactory treatment.

Putnam, of Boston, has found removal successful in curing the disease, but says that while there is little risk of death, there is great risk of considerable temporary prostration and laryngeal paresis.

Frieberg, of Cincinnati, recommends it in severe cases that will not yield to medical treatment.

Booth and Newton, of New York, have also recorded satisfactory results from operation.

There is not much to be said either for the beneficial effects of medical treatment directed towards reducing the size of the gland, or to the fact that the introduction of thyroid juice into the system in health produces certain effects similar to symptoms of exophthalmic goitre. Certainly pressure, ice, and the inunction of red iodide of mercury externally, and the administration of belladonna and ergot internally, all of which may be said to aid in reducing the size of the swelling or in diminishing the secretion, have been credited with at least as good results as any other therapeutic agents. The administration of the juice in health has been followed by relaxation of the arterioles, rapid heart action, diuresis, slight rise of temperature, &c.; and an overdose in myxœdema has produced flushing, excessive perspiration, muscular spasm, tremor, tumultuous heart action, rapid pulse, and death from cardiac failure.

Now, while all these arguments seem more or less to favour what I may call the "glandular theory," and to prove that the goitre is the cause of the other symptoms, lest anyone should be led to adopt this view from the plausible arguments set forth, and to consider that we should at once hand over our cases to the surgeon for the purpose of curing them, I will touch shortly on the other side of the question.

In a number of cases of exophthalmic goitre a complete cure has followed the removal of a nasal polypus, or the cauterisation of a thickened nasal mucous membrane, while some instances of complete recovery are recorded in which practically no treatment at all has been adopted. Guttmann about 12 years ago practised thyroidectomy without any result. Kocher, of Berne, had a case which died the night after operation, and four cases in which no result was notified, and he says the patients have as little chance of recovery from operation as if they suffered from malignant goitre. Strümpell in one case partially removed the gland, and

the patient died. While Mannheim, as the result not only of great personal observation, but also of extensive research in the literature of the subject, considers that unless for urgent dyspnoea operation should not be undertaken ; and he asserts that only twelve of Wette's cases were genuine Graves's disease, and of these, three were unsuccessfully operated on, two were moderately successful, and the others were doubtful. Four of his own forty-one cases were operated on, and only one seems to have obtained partial benefit. He says the most successful treatment is a dietetic and hygienic one, which insures physical and mental rest in the widest sense, and that experience shows electricity to be useful ; but the utmost that therapeutics can effect is a perceptible improvement, while a complete cure is beyond it.

In conclusion, it may be of interest to mention that this disease has been observed in animals. Two cases are reported from St. Petersburg—the first, that of a four-year old thoroughbred horse, which after a long gallop exhibited abnormally strong and frequent arterial pulsations, cardiac palpitations, and progressive weakness ; the thyroid body was found tumefied, and sixteen days after marked double exophthalmos appeared, and after a month's illness the colt died. The second case was that of a small pet bitch, 7 years old, in which the cardinal symptoms were present, but were cured with iodine in three months. In the Veterinary Reports for the Kingdom of Saxony, 1890, Roder cites the case of a cow in which palpitations, arterial pulsations, enlarged thyroid, and intense double exophthalmos had existed for four years. Finally, a somewhat doubtful case has been reported by Professor Cadiot, of Paris, in which a gelding exhibited cardiac palpitation, a bounding pulse, great hypertrophy of the thyroid gland, but no exophthalmos. A reference to these interesting cases will be found in the *Lancet* of August 20th, 1892.

MEDICAL FEES IN FRANCE.

IN a recent case of a disputed fee, brought before the tribunal of the Seine, the Court ruled that "in a question of medical fees the points to be regarded are the pecuniary position of the patient and the repute which the doctor may have acquired through his labours and discoveries."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Methods of Practical Hygiene. By PROFESSOR K. B. LEHMANN, Würzburg. Translated by W. CROOKES, F.R.S. 2 vols. London : Kegan Paul, Trench, Trübner & Co. 1893.

THIS work is a thoroughly practical one, dealing chiefly with the chemical, physical, and bacteriological departments of hygiene, and not closely resembling any other work on sanitary science with which we are acquainted.

The first volume treats of the work which, in reference to sanitation, is carried on in the physico-chemical laboratory. Fifty-one pages are devoted to instruction in the use of apparatus, and throughout includes some information of a general character always given in good works on chemical analysis; yet valuable hints are given in reference to chemical sanitary manipulation. One hundred and twenty-four pages are comprised under the head of "Bacteriological Methods," and this part bristles with interesting facts, and is replete with directions for carrying out observations on micro-organisms and their mode of growth. The rest of the volume—which altogether contains 433 pages—refers to special investigations in reference to air, soil, water, and food. The directions for determining the amounts of moisture, carbonic acid, &c., in the atmosphere are very full, and the methods indicated are of the most recent kind.

The soil does not come in for as detailed an examination as the air or water, but the information given, so far as it goes, is thoroughly practical. We are rather surprised to see it stated that the air contained in the soil is generally free from microbes. We always thought that the very reverse was the case. We are, however, informed that the soil of Dorpat contains 500,000 per $\frac{1}{2}$ cubic centimetre. The author attaches no importance to the determination of carbonic acid in ground air. He mentions that "typhus bacillus" has been met with in soil—by typhus is meant typhoid, for, except in two places, typhoid bacillus is throughout the work described as *typhus bacillus*.

The analysis of water is given at considerable length, but in some essential particulars the German method differs from the British. In these countries the purity of a water is judged chiefly by the amount either of organic nitrogen (Frankland's method) or albuminoid ammonia (Wanklyn's process) and saline ammonia. No reference is made to these points in the book under review. The hardness of water is determined by the Clarke method, but that is now a nearly exploded process in British laboratories, a titration process being substituted for it.

Volume II. comprises 462 pages, of which 272 relate to food, chiefly as to its chemical examination. This part of the work is valuable and up to date, and many of the processes given will be found novel to even some purely analytical chemists.

With respect to the composition of milk we are informed that in Berlin 2·7 per cent. of fat is required; 8·5 in Paris; 3 in New York and London. As a matter of fact, the Somerset House Chemical Department has fixed 2·75 per cent. of fats as the minimum in pure milk. No standard of solids minus fats is given by Lehmann; it is taken in these countries as 8·5, which seems somewhat low, and permits of average quality, and especially rich, milk being largely diluted with water.

The analysis of butter and the estimation of foreign fats in it are given according to the most recently-devised processes.

The rest of Volume II. deals with clothing, the dwelling and its contents, including ventilation and lighting, and disinfection. In English works on hygiene these subjects are treated of much more fully. Less than three pages are devoted to water-closets (a subject of great importance), which are not described at length, as is the case in British works on hygiene.

On the whole we think this work a decidedly useful one in the library and laboratory of the sanitarian.

Diseases of the Rectum and Anus. By C. B. BALL, M.Ch., F.R.C.S.I., Surgeon to Sir Patrick Dun's and Swift's Hospitals, Dublin. Second Edition. London : Cassell & Co. 1894. 8vo. Pp. 439.

THIS is a second edition of Dr. Ball's well-known work on this subject, the first edition of which was published only about six years ago. Though the book has increased but little in size—only some thirty pages—yet a large amount of new material has been

worked in, including many new illustrations, principally by means of judicious condensation and revision, though some of the more important chapters have been practically rewritten. In all respects the book has been brought thoroughly up to date, and all the most recent advances in rectal surgery are fully detailed. We notice, too, with pleasure that, as the outcome of added experience, the author adopts in this edition a more emphatic and dogmatic tone, and gives us the benefit of his own personal results—a point of much importance to the practitioner looking for guidance.

Some of the more important innovations may be briefly referred to. Under "catarrhal proctitis" we find a description of some cases in which a glairy viscid discharge took place from the rectum, and in which no disease of the mucous membrane could be detected. No mention is made of the ages of the patients, or of the general health at the time—points that seem of some importance; but all the cases recovered. In the treatment of ischio-rectal abscess we are glad to see the author recommending the thorough removal of the wall of the cavity by means of Barker's flushing scoop, but instead of the drainage he recommends we would urge the use of an injection of iodoform emulsion and immediate suture as giving better results. Again, in the treatment of fistula in ano no mention is made of the combined method of incision, scraping, and immediate suture—a procedure that, in the hands of many surgeons, has reduced the after-treatment of cases of fistula from weeks to days. In the chapter on fissure of the anus, a new and most ingenious theory is put forward to account for its pathology, and on this a novel mode of treatment is based. Whether all cases of fissure can be proved to originate in the same way is doubtful, but certainly the case figured by Dr. Ball on p. 139 bears out the accuracy of his observation in particular cases. On p. 151 we find a statement reproduced from the previous edition which is incapable of pathological support. In speaking of spasmodic stricture of the rectum the author says: "The following sequence of events occurred: the ulcer became established, and by the irritation thus set up a frequent peristaltic action of the muscular coat of the rectum was induced, tending to expel the source of irritation, and in time atrophic shortening of the overtaxed circular fibres of the muscular coat was produced." Now we know that overtaxing of a muscle leads first to hypertrophy and not to atrophy, and that when atrophy occurs lengthening from yielding and not shortening of the muscular fibres

takes place. Moreover, the statement is inconsistent with what follows on p. 159, where it is correctly stated that "all the coats of the tube" are "contracted and at the same time hypertrophied." Equally wrong is the statement that "aggravated talipes equinus resulted from a patch of lupus extending under the tendo Achillis, causing atrophic shortening of the muscles of the calf." The obvious and true sequence of events is here overlooked. The irritation causes *reflex contracture* of the calf muscles, followed by interstitial changes leading to permanent shrinking of the connective tissue and secondary atrophy of the muscle fibres. One other word of criticism. Why does the author still cling to such hybrid words as "hypersecretion," "hyperdistension," when legitimate compounds with "over" convey exactly the same meaning?

For the sections dealing with piles we have nothing but praise; indeed the subject is treated in a better way than in any other text-books with which we are acquainted; and the same may be said of those portions dealing with rectal cancer and colotomy. A very full and accurate account has been given of the pathology of rectal neoplasms which adds materially to the thoroughness and value of the work. There are also interesting tables furnished of the results obtained in cases of proctectomy and laparo-colotomy which give valuable indications for the guidance of future operators. Altogether the work is one that fully represents the present-day teaching of this special branch of surgery, and as such can be most cordially recommended. It fully maintains the high reputation Dr. Ball has acquired in a department which he has made his own, and with which his name is so intimately associated.

Stricture of the Urethra. By G. FRANK LYDSTON, M.D.; Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons, &c. Chicago: The W. T. Keener Company. 1893.

We copy the following from the Preface of Dr. Lydston, the "andrologist's" book—"No attempt has been made to fill the work with rubbish from the literary dead lumber, or to introduce innovations more startling and misleading than practical. . . . Regarding the illustrations in this monograph, a fashion prevailing in certain quarters has been departed from, due credit being given, as far as possible, to the authors from whom they have been taken."

All this is delightful to the reviewer, and he consequently begins with "this very good young man" to read an unusually interesting monograph, having his appetite whetted by the further statement, "the andrologist may find that a good deal of old straw has been threshed over, but the general practitioner and student—for whom the book is especially designed—may find a few grains of practicality (?) not hitherto presented in a readily assimilable form."

We go over the volume, and we certainly are not startled by daring innovations, and, indeed, we search in vain for any new thing, or, for that matter, for any cause of the book's existence. The anatomy and illustrations of Gray and the surgery of Keyes are largely laid under tribute, and in the chapter on organic stricture numerous illustrations credited to Dittel, but which are in reality due to our great Irishman, MacLise. Dittel appears to have been an unconscionable plagiarist, for many of Home's illustrations are credited by Dr. Lydston to him. One name we do not see, and that is the author's, and we think is it modesty or because he has made no original drawings or observations he does not appear in the letterpress? Now, we are inclined to draw the line somewhere, and we think when a surgeon has made no original observations, and shows that he is not well read in the classics of his profession, he should think twice before he rushes into print. The itch of writing is an old disease. Many are the notices of it in old authors; and it was because of such writers as the author of the volume before us that there came the cry of—"My desire is . . . that mine adversary had written a book."

Electricity in Diseases of Women and Obstetrics. By FRANKLIN H. MARTIN, M.D., Professor of Gynæcology, Post-Graduate School of Chicago, &c. With illustrations. Chicago: The W. T. Keener Company. 1893.

FADDISTS are the bane of medicine. From time to time we are tortured by the crying from the housetops the laudation of some new thing.

Apostoli's electric treatment produced first a *laudamus* from the profession, and afterwards a shoal of sharks and swindlers with electric belts and other life-giving apparatus. The sharks and impostors prosecuted and the wild enthusiasts quieted, we meet the massage tribe strong in number and confident in victory.

Every ache and pain is to be rubbed away, and even old age is to be percussed out of bones. Massage hospitals sprang into existence, pæons were sung. "Rubbers," male and female, multiplied exceedingly, especially the latter; curious advertisements appeared notifying that massage by Rose, Lily, and Violet might be enjoyed in Massage Homes; the public took alarm, put their own construction on the growing evils of the fad, and massage gave up the ghost. But fads, like popes, never die. Massage passed to the majority just in time for Koch's cure to be exploited, with the wonderful and shameful pilgrimage to Berlin for a secret remedy. Mecca was reached and the precious liquor brought over by pilgrims whose journeying was duly advertised. All at once thousands were squirted out of the world—into their graves—by faddists who knew nothing of the deadly drug they were using except that its manufacturer in six weeks pocketed huge sums of money by its sale. In almost every house there was a death; but the faddists dare not run the risk of a coroner's jury, and it was stopped. A revival of mesmerism covered the retreat of the Koch-curers, but the subject was not heartily taken up; there was an absence of enthusiasm in its followers and it silently died out.

Now the book before us is a revival of the electric fad, the flotsam of a wreck. We have read it as a matter of curiosity, and wonder that men are persuaded or persuade themselves to hold such extreme views, that a science like medicine cannot be studied without the glare of a current theory blinding the student to all other considerations.

On Seborrhœa and its Consequences. By JOSEPH F. PAYNE,
M.D., F.R.C.P. 1894.

In this pamphlet, which represents one of the post-graduate lectures delivered in London last year, Dr. Payne discusses a condition which has excited some interest of late years, especially among dermatologists.

Dr. Payne hesitates to implicitly follow Dr. Unna's dogmatic teaching about the specificity of "seborrhœic eczema;" but he admits as an important practical discovery the tracing of the connection between seborrhœa on the one hand and eczema on the other, and the bringing them under one head.

In respect of the treatment of seborrhœa of the scalp, Dr. Payne advocates thorough disinfection. He begins by careful

application for a few days of a weak HgCl_2 solution, 1 in 1,000 or 1 in 2,000, and follows this up by an ointment:—

B. Sulph. Præcip.	-	-	-	gr. 15
Acid. Carbol. Liq.	-	-	-	m. 15
Vaseline	-	-	-	ʒi.

M.

When this plan has been followed for a week or two, the effect on the scalp is extraordinary. The scurf disappears almost entirely, and the condition of the hair is improved.

Headache and other Morbid Cephalic Affections. By HARRY CAMPBELL, M.D., B.S. Lond.; Physician to the North West London Hospital; Member of the Royal College of Physicians. London: H. K. Lewis. 1894. Royal 8vo. Pp. 410.

THIS is a large book on a large subject. Of all the painful neuroses to which man is liable headache is probably at once the most common and the most variable both in severity and in significance. It is not a disease but a symptom, and books on symptoms alone are as a rule to be suspected as ignorant, or arrogant, or both. This book is neither. It is a full and learned work—the result of much labour and inspired by good faith. But it suffers from the defects necessitated by the subject. Full as it is it cannot cover the whole ground; with much learning, it is often far from explicit; ambitious as it is, it takes us little further in treatment than an exhortation to search for and remove possible causes, and in default of success to try well known drugs.

In the examination of the causes of headache the author is most successful. His theory of one whole group of headaches, those due to peripheral causes, may be stated somewhat in this way:—Originally in the sentient brain special is undifferentiated from common sensation. When differentiation occurs, the special sensibility of the brain is reserved for a certain quantity of special stimulation. When this quantity is exceeded it is registered by the apparatus of common sensation as pain. Hence, headache as a result of too much light, too much noise, irritating odours, and so on. The stimulus overflows, as it were, into neighbouring areas of pain sensibility. For megrim and headache, accompanied by high pulse tension, Haig's "uric acidæmia" does large service. It is shown with much force, and in full detail, how frequently headaches depend, not alone upon eye-strain, but upon disease of the nose,

pharynx, ear, and teeth. Treatment in such headaches must remove the cause. In the treatment of what we may call the purely neurotic headaches—those, namely, not recognisable as dependent on causes above mentioned, or on syphilis, gout, rheumatism, or indigestion—the author seems to attach most value to electricity, constant or interrupted, and among drugs to salicylate of sodium and chloride of ammonium. The chapters on treatment are well worth reading.

From the Surgical to the Mechanical Art.: a Treatise on the Manufacture of Artificial Limbs. By J. V. E. FERRIS, Artificial Limb Maker, 48 Great Russell-street, London. 1892.

THIS thin booklet is simply an advertisement for Mr. Ferris, and, as such, pure and simple, calls for no comment from us. If he wishes for notice for such a so-called book he should seek for it in our advertising columns.

Lectures on Genito-urinary Diseases. By J. C. OGILVIE WILL, M.D., C.M., F.R.S.E.; Consulting Surgeon to the Aberdeen Royal Infirmary, and Examiner in Surgery in the University of Aberdeen. With numerous illustrations. London: The Scientific Press, Limited, 428 Strand, W.C. 1894.

THESE lectures were delivered in the Aberdeen Royal Infirmary—the first five to students attending the class of clinical surgery, the sixth during a post-graduate course; and before they were issued in their present form they underwent a revision by the author. The lectures, as we read them, were particularly suited for students, and were quite up to the most advanced theories on the subjects of which they treat, and will repay reading. But we expect in a monograph some original matter, some fresh light; and in this case we are disappointed.

Burdett's Hospital and Charities Annual, 1894. Edited by HENRY C. BURDETT. London: The Scientific Press (Limited), 428 Strand, W.C. New York: C. Scribner and Sons.

FOR those who desire to wisely apply their charities, and to economically conduct those over which they have control, Burdett's book is useful. To the physician the book is very interesting

from the immense mass of information it contains on the management and cost of hospitals, metropolitan and provincial. All that concerns nurses and nursing receives special notice; indeed, Mr. Burdett is enthusiastic on every question tending to benefit trained nurses and their institutions. We confess to a diminution of the enthusiasm we first felt on their behalf, and probably so will the author of the Annual become less fervid on the question in time.

The book has much to commend it, and should be a distinct gain to a medical library.

Syphilis in the Innocent, Clinically and Historically Considered, with a Plan for the Legal Control of the Disease. By L. DUNCAN BULKLEY, A.M., M.D., Physician to the New York Skin and Cancer Hospital; Consulting Physician to the New York Hospital; lately Professor of Dermatology, New York Post-Graduate Medical School and Hospital, &c. New York: Bailey and Fairchild.

DR. BULKLEY is a voluminous writer; he has published nine monographs, and has a book in preparation. The present work is, he tells us, the result of ten years' work, and we do not question his statement, for the book smells of midnight oil.

In 1891 the College of Physicians of Philadelphia awarded to it the Alvarenga prize "for the best memoir on any medical subject." The bestowal or refusal of the prize is wholly a matter for the Philadelphia College of Physicians, but we cannot help remarking that the great majority of essays for which prizes have been awarded remain unread, and that the books which have influenced medical practice came into existence unheralded by any prize, gold medal, or other note of triumph. We may just mention the works of Sydenham, Hunter, Addison, Bright, Graves, and Waller. On the other hand, we have a long list which it would be cruel to print; they are reserved for the "*Epistolæ Obscurorum Virorum.*" Now we ask ourselves why this book is awarded a prize. A prize should imply that some advance in medicine has been made by the book, some difficulty cleared up, some further evidence to strengthen or disprove existing theories; but there is nothing of the sort, there is the result of patient toil through dry-as-dust records, nothing more. We are thankful for the book, and value it as a useful contribution to the study of syphilis; but beyond this

we cannot go. The work contains nothing that a well-read medical student should not know, and as for the disease, we agree with Chiselden in his article on "Clerical Pox;" all pox is the same, no matter how acquired, and is to be treated alike whether it occurs in bishop or corner-boy.

Prescription Book. Bristol : John Wright & Co. 1894.

WE have much pleasure in directing the attention of the Profession to a new Prescription Book, published by the eminent firm of Messrs. John Wright & Co., of Stonebridge, Bristol.

This very neat Prescription Book is sent out in two styles. One contains 100 pages in duplicate, giving a prescription and a copy of the same at one writing. The other contains 150 prescription forms perforated, for physicians and surgeons who do not care to keep copies of their prescriptions.

The price of each is only one shilling, and the firm are also issuing the Prescription Book in smaller sizes.

Transactions of the American Pediatric Society. Fifth Session. Held at West Point, N. Y., May 24, 25, and 26, 1893. Edited by FLOYD M. CRANDALL, M.D. Volume V. Printed by Bailey and Fairchild. 1893.

THIS—the present—volume contains twenty-eight papers, in which almost every subject bearing on children's diseases is treated.

Four of them deal with pertussis and three with constipation. Incontinence and enuresis, of course, find a place, as does the subject of the feeding of infants. We mention these to show the very practical character of the Transactions, as well as to recommend them for their excellence to our readers.

The Year-Book of Treatment for 1894: A Critical Review for Practitioners of Medicine and Surgery. London, Paris, and Melbourne: Cassell and Company, Limited.

AMONGST our most valued books of reference is "Cassell's Year-Book of Treatment." From the first volume to the present we possess the series, and not unfrequently consult them. We have found them reliable, practical guides, full of valuable suggestions, and all their information given clearly and briefly. The present

volume possesses all the good features of its predecessors, and has, as an addition, two excellent articles. The first of these, on "Medical Diseases of Children," is by Dr. D. Williams; and the second, on "Bacteriology," is by Dr. William Hunter. As before, the article on the "Heart and Circulation," is from the pen of Dr. J. M. Bruce, and we cannot too strongly commend its practical sound editing. Nothing worth noting during the year has escaped the distinguished editor, and all that he has collected is enhanced by annotations.

Dr. Skerrit still continues to edit "Diseases of the Lungs and Organs of Respiration," and the same diligence in collection, excellent summarising, and editing, that contributed so much to the previous volumes, is present.

The articles on the nervous system and stomach are, as before, edited by Drs. Reynolds and Maguire, and are, as in the past, just such articles—plain, practical, and intelligible—as the medical practitioner requires.

We heartily recommend this volume of the Year-Book of Treatment.

On Common Neuroses, or the Neurotic Element in Disease, and its Rational Treatment. Three Lectures delivered before the Harveian Society of London, November-December, 1891. By JAMES FREDERIC GOODHART, M.D., F.R.C.P.; Physician to Guy's Hospital, &c. Second Edition. London: H. K. Lewis. 1894. Pp. 135.

WE felt bound to commend the first edition of Dr. Goodhart's work, and we are glad to see it republished almost in its original form. Small as is the work before us, it travels over a large extent of the territory of disease. Many conditions not ordinarily considered neurotic are hinted at as in some measure coming under that heading. "My chief point now is," says the author, "that man himself is altering, and if so, so must his diseases be. And I believe him to be changing chiefly as regards his nervous centres, and that these are becoming more prone to fatigue, more easily the prey of morbid sensations, of morbid thoughts, of morbid action, and so on." And from this basis is developed a philosophy, so to speak, of indigestion, of asthma, and angina pectoris, and migraine, and many another ill that modern flesh is heir to. Dr. Goodhart is, perhaps, most philosophic in this, that he fails,

and we believe, in the present state of knowledge, rightly fails, to draw a rigid line between what we may call subjective and objective neuroses, and even between neuroses and organic disease. "I incline to believe that injuries to the head are capable, by interfering with the control power of the nervous centres, of leading to disordered function, in the first instance, and in the second to such pronounced organic departures even as an acute pneumonia." In Graves's disease the "nervousness" of the patient is held to be as characteristic as the ordinary physical signs. Treatment is by no means neglected; on the contrary, the value of drugs such as opium, arsenic, and iodide of potassium is recognised, especially in the more objective neuroses.

The Indian Manual of Hygiene, being King's Madras Manual of Hygiene, revised, re-arranged, and in great part re-written. By SURGEON-CAPTAIN A. E. GRANT, M.B., Indian Medical Service; Professor of Hygiene, Madras Medical College. Vol. I. Madras: Higginbotham & Co. 1894. Pp. 442.

THE "Madras Manual of Hygiene" * was published in 1875, and a second edition appeared in 1880. It was prepared primarily for the use of students in the Medical College at Madras, but was extensively used, we understand, in other parts of India. The work before us professes to be a new edition of Dr. King's book; but we doubt if the author of its being would recognise his own offspring, so stout has it grown and so altered are its features. We must suppose that the original author (who is still, we have reason to believe, alive and active) was unable or unwilling to undertake the preparation of the new edition.

In the fourteen years which have passed since the previous edition of this work hygiene has made great progress, and Prof. Grant has striven, not unsuccessfully, to bring his Manual up to the level of modern sanitary science. His work is freely illustrated, in which respect the original text-book was deficient. It professes to be an *Indian*, not merely a *local*, Manual, and it is more than twice as bulky as either the previous editions. This increase of size is a questionable improvement in a text-book for the Indian Colleges, where the majority of the students can ill afford expenditure on books. In the volume before us only Air, Water, Soil, Sewage-disposal (called "conservancy" in India), Buildings, and

* By Surgeon-Major (now Deputy Surgeon-General) H. King, A.M., M.B.

Meteorology are treated of. The second volume, dealing with the remaining subjects included under the name of Hygiene, is in preparation, and will contain about 600 pages, with 20 illustrative plates. The completed work will be indispensable to every medical man whose duties lie in India, and even to those of us who are connected with sanitary administration at home it will be found a convenient and useful book of reference.

It is not unusual to read most unfavourable comments on Indian sanitation, and on the action of the Indian Government in promoting the health of the population. To those who know India, the difficulties which the extent of the districts and the habits of the people oppose to sanitary measures, what the Governments have tried to do, and how much they have actually done, such comments appear certainly unfair, and, perhaps, ridiculous. We take the following figures from Prof. Grant's Introduction to illustrate one of the difficulties to which we have referred:—The average area of an ordinary district of the Madras Presidency is “6,722 square miles, which is about 300 square miles more than the area of Wales.” The Madura district has an area of 8,808 square miles, and a population of 2,608,404 persons, distributed in 4,103 towns and villages. For this area and population there is one Health Officer—the Civil Surgeon—and less than a dozen more or less imperfectly educated subordinates in charge of dispensaries in the larger towns. They do what they can, and a good deal has been done.

ROYAL COLLEGE OF SURGEONS IN IRELAND—SCHOOLS OF SURGERY—
PRIZE LIST, WINTER SESSION, 1893–94.

Descriptive Anatomy—Junior: Mr. J. Conway, 1st; Mr. F. J. Palmer, 2nd. Senior: Mr. D. Kennedy, 1st; Mr. W. M. Power, 2nd. *Practical Anatomy*—First Year: Mr. F. J. Palmer, 1st; Mr. J. Leventon, 2nd. Second Year: Mr. W. J. Sweeny, 1st; Mr. H. E. Eardley, 2nd. Third Year: Mr. M. Carroll, 1st; Mr. R. M. Hamilton and Mr. H. Montgomery, equal, 2nd. *Practice of Medicine*—Miss C. L. Williams, 1st; Mr. A. C. Oldham, 2nd. *Surgery*—Mr. A. C. Oldham, 1st; Mr. G. E. J. A. Robinson, 2nd. *Midwifery*—Mr. P. F. Morrissey, 1st; Mr. A. Leventon, 2nd. *Physiology*—Mr. J. Thomson, 1st; Mr. F. Heffernan, 2nd. *Chemistry*—Mr. F. J. Palmer, 1st; Mr. R. H. D. Pope, 2nd. *Pathology*—Mr. A. Leventon, 1st. *Physics*—Mr. B. Scribner, 1st; Mr. G. F. Sheehan, 2nd. *Biology*—Mr. D. Hadden, 1st; Mr. B. Scribner, 2nd.

PART III. SPECIAL REPORTS.

REPORT ON GYNÆCOLOGY AND MIDWIFERY.

By E. HASTINGS TWEEDY, M.R.C.P.I., &c.; Assistant Master,
Rotunda Hospital, Dublin.

- I. GENERAL SYMPTOMS ARISING FROM BACKWARD DISPLACEMENTS OF THE UTERUS.
 - II. OPERATIVE TREATMENT OF RETROFLEXIONS.
 - III. A NEW METHOD OF EXPLORING THE FEMALE BLADDER.
 - IV. THE REMOVAL OF EXTENSIVE MALIGNANT DISEASE OF THE CERVIX BY CAUSTICS.
 - V. INDUCTION OF LABOUR BY THE INTRA-UTERINE INJECTION OF GLYCERINE.
 - VI. FURTHER BIMANUAL SIGNS OF EARLY PREGNANCY.
 - VII. INHALATIONS OF OXYGEN IN THE TREATMENT OF SEPTI-CÆMIA.
-
- I. GENERAL SYMPTOMS ARISING FROM BACKWARD DISPLACEMENTS OF THE UTERUS.

MUCH attention has of late been bestowed on the pathological condition of backward displacement of the uterus, both as regards the special train of symptoms arising therefrom and also as to the best operative proceeding to remedy these conditions.

Dr. Herman's paper (Trans. London Obstetrical Society, Vols XXXIV. and XXXV.) dealing with the symptoms of this abnormality, and based on the study of 407 carefully-noted cases, will, we hope, carry conviction to the few who still hold that no symptoms whatever result from these displacements.

The author finds that chronic pain is present in nine-tenths of all cases—this latter is most frequently situate in the sacral region.

Sensations of descent and pain over the region of the ovary, most commonly on the left side, are the next most frequent

symptoms. One patient in nine will complain of painful defæcation, while vesical irritation will be present in the proportion of one in five.

Dyspareunia is not an uncommon symptom, whilst amongst others that occasionally will be observed are low abdominal pain and difficulty in walking. Leucorrhœa, in the author's opinion, does not furnish any evidence of the disease.

In a former communication Dr. Herman showed that menorrhagia and dysmenorrhœa are, in a certain proportion of cases, directly the result of retro-displacements.

II. OPERATIVE TREATMENT OF RETROFLEXIONS.

Coming to treatment, we find efforts made, by a variety of methods, to discard the pessary for some more scientific plan, which has for its object the fixation of the uterus in front. Many gynaecologists have written throughout the year in praise of Alexander's operation.

Professor B. V. Chalot (*Med. Annual*, 1894) has modified, and, as he believes, has simplified, the latter—(1) By opening the inguinal canal in almost its entire length, by which we cannot fail to find the whole thickness of the round ligament, no matter whether the patient be fat or thin; (2) By dissecting up each ligament beyond the internal inguinal ring, and often even inside the abdominal cavity; (3) By rendering unnecessary the help of an assistant to keep the uterus straight and lifted up during the operation; (4) By direct reduction, effected solely by strong traction on both ligaments; (5) By suturing each ligament to the whole length of the inguinal canal; and (6) By rendering unnecessary any kind of pessary after the operation.

Dr. Alexander, in the same publication, comments on the above modification, and also gives a short description of the operation as he now performs it :—

" I introduce an easy-fitting ' Hodge ' before operation, a suitable intra-uterine stem being also inserted in extreme and old-standing retroflexions. These act as splints, and, I think, contribute to success; but I do not always use them, and never in cases of prolapse, where vaginal or perineal operations are performed at the same time.

" I make an incision, one or two inches in length, according to the stoutness of the patient, from the spine of the pubis outwards and slightly upwards, and cut down again and again until the

external oblique aponeuroses come into view. I then find the external abdominal ring, scratch through the thin fascia over it, and seize the ligament with forceps, pulling it up gently until I get it between my finger and thumb. By the aid of this living forceps I coax it out, separating or cutting through any fibres that do not belong to it, and when it begins to 'come' I pull vigorously upon it until it will run no further. I then slacken it a little, and put two fine silkworm gut sutures through the ligament and both pillars of the ring. These sutures are to remain buried. The portion of the ligament that looks frayed by pulling out is cut off and the rest packed and stitched in the wound, which is closed by catgut sutures. Except in very stout persons no drainage is now used.

"The opposite side is now operated on in the same way. In three weeks the stem is removed and the patient allowed up. The Hodge is removed in another week. In upwards of 90 per cent. of all cases the maintenance of the uterus in the proper position is secured by the operation."

Mackenrodt's operation for the cure of retroflexion—which was fully described in the March number of this Journal—has come rapidly into popularity as a means of fixing the uterus in front.

This operation has lately been performed several times in the Rotunda Hospital by the Master, Dr. W. J. Smyly, with very pleasing results, but it has not had a long enough trial to enable us as yet to speak definitely as to its advantages over other methods.

Leopold's ventro-fixation with Wylie's modification of it are still much employed, and Dr. Pryor (*New York Journal of Obstetrics and Gynaecology*, Vol. III.) has described still another method of fixing the uterus in its normal position when the abdomen is opened. Having scarified corresponding surfaces on the uterine and bladder walls, the organs are approximated and stitched together. The author only advocates this operation in the event of its being found necessary to open the abdomen for some other cause.

III. A NEW METHOD OF EXPLORING THE FEMALE BLADDER.

Dr. Howard Kelly (*American Journal of Obstetrics and Gynaecology*, January, 1894) has contributed an excellent article on the illumination of the interior of the bladder by his new method.

The patient, lying in the dorsal position, has her thighs strongly flexed on the abdomen and tied in that position. When anaesthesia

is complete the urethra is dilated to a diameter of 12 millimetres as a rule. As large a speculum as can be employed without injury to the urethra is then inserted. When the obturator from the speculum is withdrawn the bladder fills with air, and a good light, reflected from a head mirror, will enable the entire cavity to be directly inspected. This method will enable the operator to see the orifice of the ureter and pass a catheter through it if necessary.

Dr. Kelly says—"It becomes a duty to examine at once all bladder affections which are more than trifling to disclose the exact nature and the extent of the disease. Frequently the examiner will be astonished by discoveries which will relegate one by one a large number of functional affections to the domain of positive demonstrable diseases.

"To generalise from the cases lately under my care I am able to say that cystitis is often a localised disease, limited to a special area of the bladder. Tubercular and ulcerative cystitis can be detected at once. Tumours, calculi, and fistulæ are readily found. Cases usually called irritable bladder show definite areas of hyperæmia surrounding and between the ureteral orifices.

"Treatment is greatly facilitated, as direct applications to localised areas can be made with the same ease as upon the exterior of the body." In conclusion, Dr. Kelly states that "forceps, snares, tenacula, knives, and instruments for measurement can be readily used through the larger specula, from No. 12 upward."

IV. THE REMOVAL OF EXTENSIVE MALIGNANT DISEASE OF THE CERVIX BY CAUSTICS.

Dr. Bowreman Jessett reports (*British Gynaecological Journal*, November, 1893) three successful cases by this method, where the disease was too far advanced to remove by vaginal hysterectomy.

The author states that "he would not advise that all cases be treated after this fashion, but if patients who formerly had been simply allowed to die could be given at least a short time to live, and that free from pain and from unpleasant discharge, he thought that it was worth trying." Saturated solution of chloride of zinc is the caustic preferred. Dr. Jessett condemns the actual cautery "as it does not go deeply enough, not nearly so deeply as the caustic." It moreover is attended with a much greater degree of pain. We quote the first case cited in the paper:—

"The patient, aged thirty-seven, had borne three children, the last eight years previously. For the last two years she had had

frequent haemorrhage per vaginam, previously she had been regular. The cervix was found, on examination, to be deeply infiltrated with cancerous disease, but it was slightly movable. On Sept. 26th the uterus was scraped out with his dredger, and, after all the diseased portions had been removed as far as possible, the uterine cavity was plugged with chloride of zinc. . . . He employed a strong paste, in which the cotton wool was soaked; then tampons soaked in a strong solution of carbonate of soda were introduced. There was no subsequent pain or other disturbance. Ten days after a large slough formed, consisting of what appeared to be the whole uterus, which came away easily. The patient is doing well."

V. INDUCTION OF LABOUR BY THE INTRA-UTERINE INJECTION OF GLYCERINE.

Dr. Byron Staunton (*American Journal of Obstetrics and Gynaecology*, October, 1893) reports a case where he adopted Pelzer's method of inducing labour with very satisfactory results. Labour commenced four hours after the injection, and the os was fully dilated five and a-half hours after the glycerine had been employed.

Commenting on this new plan of treatment he says—"So far as its safety goes it has no advantage over the bougie of Krause. The introduction of the catheter with which the glycerine is to be carried well up into the uterus is as likely to rupture the membranes as the introduction of the bougie; but this method has great advantages over that of Krause in that it much more promptly excites uterine action.

"The method of Pelzer is one easy of execution, is a very efficient one, and is safe if properly performed. The operation should be done under the strictest antiseptic precautions. The instruments used must be thoroughly sterilised, and as in all other methods the vagina and vulva must be thoroughly disinfected. The glycerine must be chemically pure and sterilised by boiling, and kept in a vial that has been thoroughly cleansed and boiled. An important point is to see that no air is introduced into the uterus. To prevent this accident the syringe and catheter should be filled with glycerine before introduction. The amount of glycerine used by Pelzer was from one to four ounces, but a smaller quantity has acted very promptly. To prevent the glycerine escaping the catheter should be carried well up into the uterus.

VI. FURTHER BIMANUAL SIGNS OF EARLY PREGNANCY.

Dr. Dickinson has contributed a paper to the *New York Journal of Obstetrics and Gynaecology*, November, 1893, on this subject. He states that "the presence or absence of pregnancy may be determined in favourable cases by bimanual examination between the second and sixth week after coitus, or between the third and eighth after the beginning of the last menstruation.

"Bellying or bulging of the surface of the body of the uterus is the most constant and valuable sign. It is rarely absent. It may usually be found five and a-half weeks after the beginning of the last menstruation, or by the twenty-eighth day after coitus, although often present by the sixteenth or twenty-second day. Occurring most frequently on the anterior face, it may appear in both, while in retroversion it is found posteriorly, and in certain cases laterally.

"2. Elasticity, resiliency, or softening of the body of the uterus is more readily detected than the above, but less frequently present. It was found on an average six weeks after the period, or by the thirtieth day after coitus, but occasionally by the sixteenth or twenty-first day; usually it appears later than bellying.

"3. Compressibility of the lower uterine segment (Hegar's sign) is less often found than the preceding, when it appears it may be fairly well defined by the twenty-fourth day after intercourse; but it is often indistinct until the thirtieth or fiftieth—say five to seven weeks after menstruation. It is, therefore a later sign than the preceding.

"4. A transverse fold on the uterine wall is at times distinct in the relaxed condition. Although infrequently found, this sign is of high value, and may be detected usually after the fourth week."

The author adds to these signs a further one, which he has but lately discovered—viz., "the denser spot," which, he states, can be felt, in a certain proportion of cases, situate on the anterior wall of the uterus.

VII. INHALATIONS OF OXYGEN IN THE TREATMENT OF SEPTICÆMIA.

Dr. Andrew Currier (Trans. American Gynaecological Society, Vol. XVIII.) is convinced of the efficiency of oxygen in the treatment of these cases.

"One of the most noteworthy symptoms attending this method of treatment is the drowsiness and sleep which are induced. The

increased freedom of respiration, the warmth which suddenly diffuses through the entire body, the condition of bien-aise which patients at once assume are certainly suggestive that a powerful change is being wrought in the body, and if the administration of oxygen begins sufficiently early—that is, before the centres are paralysed by the poisonous agencies—it would seem that much benefit could be expected from the use of this remedy.

ECBOLIC POWER OF QUININE.

We learn from the *Indian Medico-Chirurgical Review* that, in October, 1893, the Grant Medical College Society (Bombay) appointed a Committee "to inquire into the effects of the administration of quinine in cases of fever during pregnancy." Thirty-three replies were received to a circular issued to the principal practitioners in the Bombay Presidency, asking for opinions on the subject; 24 were in favour of administering quinine; 21 unreservedly, 3 "with care;" five were opposed to it; four were doubtful. The Committee reported that—1. The existence of pregnancy is no bar to the administration of quinine. 2. For fevers and other affections during pregnancy in which quinine is indicated, the effects of the drug are more marked than those of any other. 3. Abortion following the administration of quinine is either the result of the original malady or the effect of idiosyncracy. 4. Allowing for an idiosyncracy, in cases in which a tendency to abortion exists, and in others, as a matter of precaution, quinine is best administered combined with a sedative (opium). 5. Hence the old-standing view of the action of quinine on the duration of pregnancy is not borne out by the clinical experience collected in the replies. These conclusions agree with those at which the Obstetrical Society of London arrived, some years ago, after a similar inquiry.

IMMIGRATION INTO THE UNITED STATES.

THE United States Commissioner of Immigration at New York, in a recent report, states that there were 352,885 immigrants received into the United States during the year ended Dec. 31, 1893. The comparative figures of the six leading nationalities are as follows: Italy, 69,074; Germany, 55,981; Russia, 87,100; Ireland, 30,236; Sweden, 28,965; Austria, 28,872. The number of illiterate, those who could neither read nor write, was 52,919, and of these Italy furnished by far the largest number, with Russia a close second, while only 530 out of the nearly 29,000 Swedish immigrants did not have the rudiments of an education.—*Medical Record.*

CLINICAL RECORDS.

*Notes on Uncommon Forms of Skin Diseases.** By R. GLASGOW PATTESON, B.A., B.Ch., Univ. Dubl.; F.R.C.S.I.; Surgeon in charge of the Skin Department, St. Vincent's Hospital, Dublin.

VIII.—CIRCUMSCRIBED SCLERODERMA.

THIS affection is of sufficient rarity to warrant the inclusion of a case in this series of papers. It is now universally recognised as being identical with the disease known as *Morphaea*, and with the "true *Keloid*" described by Addison, and long a source of confusion among dermatologists.

F. R., aged twenty-eight, was sent to me by Dr. Leonard Kidd, of Enniskillen, and to him I am indebted for the very accurate notes of the early stages of the affection. Writing in July last, he gives the following history :—"About a year ago the patient noticed a large and prominent vein, bluish in colour, running vertically in the centre of his forehead. Six months ago this got flat, and in a couple of months assumed a yellowish colour, and soon after the yellow colour appeared the skin got thick. Running down the centre of the forehead from the margin of the scalp to the internal canthus, is a raised ridge, about half an inch wide, but not uniform in width, and having its margin irregularly indented. The skin of the affected part is of a pale lemon colour, smooth, raised, thickened, and hard, without sensation of pain, but with a feeling as it were of stiffness. It is bordered on each side by a band of bluish skin about one-sixth of an inch wide. On the cheek a similar condition exists, beginning about one-quarter inch below the internal angle of the right eye, and extending to a point midway between the external angular process of the orbit and the angle of the mouth. The colour and elevation of the part are not so striking as on the forehead." And in a letter some months subsequently, Dr. Kidd calls attention to the fact that a small patch had made its appearance in the upper lip, and that the hairs in the affected area had fallen out.

I first saw the patient on the 10th of April last, and presented him at the Biological Club the same evening, having made the following notes of the condition then present :—There is a band of somewhat raised, dense, and atrophic tissue running upwards and, in a slightly oblique direction,

* Continued from the number of this Journal for May, 1894. Vol. XCVII, No. 269, p. 444.

outwards from the inner canthus of the right eye to the margin of the hairy scalp. It is somewhat broader above than below; is but slightly movable over the underlying tissues, and is of a peculiar canary-green colour. It is sharply differentiated from the healthy skin around both by sight and touch, the margins being abruptly cut off; but there is in one part only, and that to a slight extent, any trace of the bluish coloration of the adjacent parts which had existed at an earlier stage. This band measures 72 mm. in length vertically, is 12 mm. in breadth below, and 20 mm. at the widest part above. It is not uniformly yellow or tense, but here and there, especially at the under part, little streaks of apparently unaffected, or only partially affected, skin can be observed. These are little islets of skin that have either escaped the progress of the disease or undergone spontaneous resolution. Sensibility is impaired in varying degree over this area, but is nowhere completely lost. Blending with the nasal portion of this band, and starting just below the inner canthus, is another patch which runs obliquely downwards and outwards across the infra-orbital foramen towards the angle of the mouth. It is irregular in outline, is not so prominent as the upper band, and resembles more the colour of old ivory. It measures 34 mm. in length by 15 mm. in its greatest width. From its margin numerous little spur-like processes can be felt running out into the surrounding healthy skin. About half an inch below and external to the right eye, just over the temporal process of the malar bone, is another irregular, hard, and yellowish patch about the size of a sixpence; and in the upper lip a triangularly-shaped one not larger than a threepenny piece, and situated just midway between the angle of the mouth and the ala of the nose. The next and last spot is on the chin, and is one that I almost overlooked, as it appeared to be a mere dimple, but examination showed that the floor of it was formed by a little ivory-coloured plaque, and its site corresponded exactly to the mental foramen, and to the point of exit of the mental branch of the inferior dental nerve. This spot has come, he says, inside the last couple of months. So far, the whole duration of the disease—from the time he first noticed the “vein”—has been about twenty months; it has run an absolutely painless course, and, except for the sensation of restriction it gives rise to on attempts at facial movements, it has caused him no inconvenience whatever. His health otherwise is good, but every spring for some years past he has suffered from attacks of an asthmatic nature. His own impression is that the disease is at present quiescent, so far, at least, as the earlier developed patches are concerned.

As regards the starting-point of the disease, it seems probable that what he describes as the “vein” on the forehead was in reality only the discoloration that so commonly appears as the precursor of the sclerotic process. In fact, Brocq describes this as the usual course. “La morphée,” he writes, “débute par une toute petite tache violette ou d'un rose pale;

elle s'étend peu à peu, prend une teinte rouge violacée, puis au bout de quelques mois elle blanchit au centre tandis que la partie périphérique ou zone d'extension conserve sa teinte lilas caractéristique. Sa forme est arrondie, ovulaire, ou allongée et irrégulière; à son niveau, la peau est infiltrée, lardacée, et indurée (*Variété lardacea* d'E. Wilson)."^a

As to the causation of the disease little or nothing has been definitely determined. It appears to be more common in women, and occurs especially between the ages of twenty and forty (Brocq). Its duration is variable—"from a year or two to eight or ten;" and it "may be attended by the development of fresh patches from time to time, and the retrogression of some of the others."^b Some cases undergo gradual and spontaneous resolution, all traces of the affection ultimately vanishing, while others either persist in a stationary form or slowly evolve, leading to fixation and immobility of the skin with atrophy of the underlying muscles, and in the case of the face ending in an expressionless or mask-like type of countenance. By the French school it is classed with the "tropho-neuroses," and its relation to nerve influence seems to be pretty generally recognised. Mr. Hutchinson has published several cases in which the distribution of the disease bore definite relation to the distribution of nerve trunks;^c and this point has been frequently observed by others, a special predilection seeming to attend the area of the trigeminal nerve. In an address on the "Study of Skin Diseases as illustrating the Doctrines of General Pathology," delivered some years ago, Mr. Hutchinson insisted very strongly on this view of the subject, though all his statements will scarcely meet with universal support. "Close to herpes, and in some respects much resembling it, we have the singular and very rare malady, morphea. Like herpes, this affection of the skin is clearly distributed by nerves, but it presents as to this statement some exceptional phenomena. Like herpes, it comes out suddenly and without obvious cause; and, having come out, it shows no tendency to spread. (?) It affects in many cases many regions at the same time, and in this respect it differs from herpes. . . . Morphea is a neurosis just as definitely as infantile paralysis, and possibly it is in real nature closely allied to it, the one being a primary affection of motor nerves, the other of the vaso-motor."^d

The relation of the distribution of the patches of affected skin in the above case to the branches of the fifth nerve is very striking. Thrown into tabular form the nerve branches involved can be seen at a glance, and it is to be noticed that all the trunks of the nerve are implicated:—

^a Brocq : *Traitemennt des Maladies de la Peau*. Paris, 1892. P. 741.

^b Crocker : *Diseases of the Skin*. 2nd edition. P. 376.

^c Archives of Surgery. Vols. II. and III., pp. 238 and 29 respectively.

^d Brit. Med. Journal, July, 1887. Vol. II., p. 229.

Supra- and infra- trochlear }	- Branches of ophthalmic division of 5th.
Temporo-malar, facial, and superior labial }	- " superior maxillary " "
Mental (inferior dental) }	- " inferior maxillary " "

And curiously, too, the starting-points of the different patches appear to be the points of exit of the nerve branches from bony foramina. In many instances where the facial nerves have been engaged, the condition of unilateral atrophy of the face has been observed to follow;^a but though there appears to be some flattening of the side of the face in this case, it is probably due mainly to the loss of cutaneous mobility, and not to any real wasting or loss of power in the underlying muscles.

The treatment of this condition may be briefly epitomised:—If friction and massage do not diminish the hardness and increase the suppleness of the bands or plaques, leave them alone.

NIGHT STUDENTS.

THE *St. Louis Clinique* reprints from the New York *Sun* the following reply to an inquiry, signed "Duffy," whether "there is a medical school in New York in which the lectures for the first year are given in the evening or any time after 3 p.m":—"Duffy, you and dozens of other 'would-be' doctors think you can study medicine in the happy-gu-lucky way the law-pills study law—lectures in the afternoon, office work in the morning. You must give up that idea at once. Medicine requires twenty-five hours out of twenty-four, and more on Sundays and holidays. The lectures in every medical school are given when the professors and lecturers can find time for them. They're given in the morning, and in the afternoon, and in the evening, and some of the private 'quizzes' begin at 10 30 or 11 p.m., and stop in time to get ready for breakfast, if you dress quickly. Now, Duffy, if you ask because you think medicine is a snap like these afternoon law schools, you'd better keep out of it; but if you can stand the pace, and ask simply because you are ignorant, why, go ahead, with good health and hard work you may get your license to 'kill, kill, kill, kill, kill.'"

^a This is the condition generally described under the hybrid title of *hemiatrophia facialis*, by which it is meant to convey that one half of the face has undergone atrophy, and not that there is partial atrophy of the face, as it really should imply. Dr. C. J. Nixon published a case of this affection associated with sclerodermia, in the Journal some years ago, in which the literature of the subject is very fully discussed. Compare also Rosenthal's remarkable case (*Berl. klin. Wochenschr.*, No. 34, 1889); and for portraits, see Hutchinson's *Archives of Surgery*, Vol. III, p. 44.

PART IV. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—**GEORGE H. KIDD, M.D., F.R.C.S.I.**

General Secretary—**W. THOMSON, F.R.C.S.I.**

SECTION OF ANATOMY AND PHYSIOLOGY.

President—**PROFESSOR ALEX. FRASER.**

Sectional Secretary—**A. BIRMINGHAM, M.B.**

Friday, January 26, 1894.

THE PRESIDENT in the Chair.

Exhibits.

THE PRESIDENT exhibited enlarged photographs of human and other vertebrate embryos. The human embryos ranged from the third week down to half term. They also embraced sections of birds from the first day down to the breaking of the shell. Some of the photographs exhibited included those of rabbits, sheep, pigs, calves, rats, &c.

DR. R. H. Woods exhibited specimens of enlarged turbinated bones causing obstruction. The first specimen was taken from the left nostril of a woman, aged forty-five. He took away the anterior part of the bone and found it to consist of a tumour, which was hollow and which came away on pulling it with an artery forceps. The second specimen was a dissecting room one, and the anterior end of the middle turbinated bone was enlarged. On making a small opening into it, it was found to be hollow, and it evidently must have caused some slight obstruction during life.

MR. F. A. NIXON said the specimens were of interest, especially as they showed the difficulties there is in sometimes recognising a nasal polypus. He also saw a case in which the extreme obliquity of the septum simulated a polypus. The disease attacked not only the inferior turbinated bone but the middle as well.

SIR WILLIAM STOKES having taken the chair,

The PRESIDENT delivered an address on the position of anatomy in general, and certain problems in connection with the evolution of the central nervous system in particular. There was also a lime-light demonstration illustrating anatomy from the morphological side (macroscopic, minute, and developmental).

SIR W. STOKES said they were aware that it was not customary in the Academy to discuss any points that might be raised in an inaugural address. The subject was one of special interest; still he thought it well not to deviate from their usual custom on the present occasion. But there was one thing that they could do, and that was to pass a special vote of thanks to the President for the learned, lucid, and original paper which they had just heard.

The vote was carried with acclamation, and the President returned his thanks to the members.

Case of Single Kidney.

DR. H. C. TWEEDY exhibited a case of "single kidney" taken from the body of a woman, aged thirty. The left kidney was greatly enlarged. The left renal vessels were normally placed, but were also larger than usual. The ureter was much wider and also apparently thicker than in the natural condition. No trace of kidney could be found on the right side, and careful dissection revealed no artery or vein, large or small, corresponding to the vessels supplying the existing kidney. No ureter was found on the right side.

Dr. Tweedy drew attention to the rarity of this condition, only about 100 cases being on record, the proportion of females to males being about 1 to 4, and quoted a statement recently made by Dr. MacDonald Brown, that out of 12,000 autopsies made in the various London hospitals, only three cases of "single kidney" were met with. The case was further worthy of notice in that no congenital defects were discoverable in other organs. Nor were there any indications during life that the condition existed. The patient died of cirrhosis of the liver, followed by peritonitis, and the cause of death was in no way connected with the absence of the right kidney.

PROFESSOR CUNNINGHAM thought that the members of the Anatomical Section should feel greatly indebted to Dr. Tweedy for bringing this specimen before them. He had very little doubt that it was a *bona fide* absence of the kidney. This was an extremely rare condition, and on that account the interest in it was considerably heightened.

PROFESSOR BIRMINGHAM said that a point of special interest in the specimen was the peculiar condition of one renal vein, which for a little part of its course divided into two and united again.

PROFESSOR PURSER inquired whether the broad ligament of the uterus

was examined on that side, or whether the remains of the Wolffian bodies were to be found.

PROFESSOR FRASER said that, in reference to the aperture in the renal vein, he remembered somewhat similar arrangement of veins in the pelvis which formed a *rete mirabile*.

DR. TWEEDY explained that no special examination was made of the broad ligaments of the uterus, because at the time their attention was directed in looking for a special pathological condition.

Lobus Olfactorius Impar.

PROFESSOR FRASER next made a communication on the lobus olfactorius impar of birds and mammals. He said it was well marked in the human brain, or at least the region that is taken for it. It was a hollow in the human brain which lies above the anterior commissure and between the two pillars of the fornix. It was named the recessus triangularis by Schwalbe, of Strassburg. He had long been familiar with the condition in embryos, but it was only lately that it had been brought into notice by von Kupfer, of Munich. It was of great importance although of no size, and he had seen it in the whole of the vertebrate series.

PROFESSOR SYMINGTON said that the olfactory part of the brain has lately attracted great interest. He thought, however, they needed some further proof that the part described by Prof. Fraser was in communication with the olfactory bulbs. In the adult brain it appears to have a slight communication with the olfactory bulbs, but he would like very much to know if Professor Fraser could show them the degree of communication between this recess and the olfactory bulbs, either in man or the higher mammals. He did not quite grasp this relation to the olfactory bulbs, and he did not yet quite realise the grounds upon which Professor Fraser had come to this conclusion.

PROFESSOR HADDON explained that in some lower forms the only opening to the alimentary canal was through the anterior part of the nervous system, and this might account for the little recess. Professor Fraser had referred to the condition in the lamprey, but that species was rather a group in itself and off the main line, and little could be deduced from its condition. In conclusion, he failed to see what the neural canal had to do with the olfactory organ.

PROFESSOR FRASER said he did not think it was a greater jump to conclude that the little recessus triangularis was a median olfactory lobe than the conclusion about the median eye. There was a median thickening of the epiblasts corresponding to the little projections from the median aspect of the brain, just as there was a lateral thickening of the epiblasts corresponding to the lateral nostrils. In his opinion it was a very erroneous and unscientific way to judge of the importance of a structure from the adult condition in which it was found.

The Section then adjourned.

SECTION OF OBSTETRICS.

President—RICHARD D. PURFETT, M.B. Univ. Dubl.

Sectional Secretary—F. W. KIDD, M.D.

Friday, February 2, 1894.

Dr. MACAN in the Chair.

Exhibits.

DR. LANE exhibited a polypus of uterus, and read the following notes:—

L K., unmarried, who stated her age to be forty years, was sent to me to the City of Dublin Hospital on the 29th of November, 1893.

She had been attended by a gynaecologist for a year previously owing to her suffering from a profuse red discharge, and she had also consulted once or twice a general practitioner. It would appear she had been a patient of the specialist for nine or ten years, as she had some chest ailment. Changes came on between 15th and 16th, lasting six days. They were, however, irregular, the intervals varying from six weeks to three months; they were accompanied by slight pains in hypochondriac and right and left iliac regions, and sometimes vomiting. This condition of affairs continued till February, 1890, when the discharge lasted fourteen days, and was rather heavy; and from that date the changes, as a rule, returned every five weeks and lasted from fourteen days to three weeks.

In October, 1893, the discharge lasted only nine days, but it was very heavy and was accompanied by intense pain and vomiting. The patient felt very weakly after this.

There was a slight red discharge three times before the November change. On this occasion I saw the patient for the first time, but owing to the discharge having commenced that day I did not examine her. I advised her to remain quiet and ordered some ergot. On the way home the discharge became so heavy that it went through the diapers she had on, also through all her clothes, and soaked into the cushion of the railway carriage. It continued bad for some days. When the discharge ceased she again came to hospital, and on examination this tumour was found projecting into the vagina, but owing to the small size of the vagina and the tenderness of the lower part of the abdomen I was unable to say definitely whether it was a polypus or an inverted uterus. I was afraid to use a sound, both on account of the haemorrhage and not knowing what the condition of the parts was, so I asked the patient to come into hospital, which she did in a few days after. When I next examined there was not so much tenderness, so I was enabled to find

the uterus lying above the tumour and directed to the right side. I was also able to reach the cervix, which was greatly dilated, cupping the tumour. I then passed a sound and determined to try and remove the tumour at once. The patient was anaesthetised, and then I was able to make out all that was necessary for me to know. I caught the tumour near the pedicle with a vulsellum and commenced twisting it, but as it appeared to be breaking down I put on a larger vulsellum, and by means of the two, assisting with my two fingers in vagina, I was able to twist off the tumour. I had not a curette with me, so I simply washed out the uterus, there being but a very slight discharge.

I have seen the patient twice since she left hospital, and although the cervix has contracted very much yet it has not got back to what it should be. There had not been a change up to the time I last saw her.

DR. ATTRILL said the specimen illustrated the rule that when a uterine tumour becomes vaginal the haemorrhage, as a rule, ceases, or becomes very moderate in amount.

DR. W. J. SMYLY exhibited a specimen of double ovarian tumour. He said the specimen was removed from an old lady of about sixty years. Her abdomen was enlarged to about the size of an eight months' pregnancy. On examination he found, on the right side, a tumour which was slightly movable, and in front there was free ascitic fluid. On making a vaginal examination he found a cystic enlargement in Douglas' pouch. The uterus could not be palpated. He diagnosed a double ovarian tumour, one above the uterus and the other in Douglas' pouch. On opening the abdomen fluid escaped, and he then removed an ordinary cyst. He ligatured the pedicle with catgut, and found another cyst about as big as the fetal head in the posterior *cul-de-sac*. This was a proliferating one. It also contained a small amount of sebaceous matter, while the solid portion of it appeared to have a fibrous look. In fact, the patient presented a whole museum of pathological specimens of the ovary.

DR. HORNE inquired why Dr. Smyly used the catgut for the first time, or was he not satisfied with the silk.

DR. LANE asked what precautions were taken to keep the catgut from slipping.

DR. SMYLY said that he was not satisfied with the silk ligature. He thought the whole question of treating the pedicle not satisfactory as long as such a case as that of Dr. Alfred Smith occurred, in which the pedicle became adherent to the colon, and caused the patient such intense pain as to necessitate colectomy. As long as there was a raw surface, which causes adhesions, the silk ligature was always a source of danger, even if embedded, and it caused irritation as well. In his case he stitched the peritoneum over the raw surface, so as not to leave a raw surface on the face of the stump. He tied the round ligaments separately and the

pedicle in three different parts. He did not think the catgut would slip if they tied it with a sailor's knot, and if they put three knots on it.

DR. MACAN exhibited a specimen of tumour of the broad ligament. He said it was a blood cyst of it. He thought at first it was a dermoid cyst of the ovary, and in size it was about as large as the foetal head. The patient was one from whom about four years ago he removed a dermoid cyst of the left ovary. She then went home and aborted about six weeks after the operation. From that time she had been in good health until about two months ago, when she complained of constant pain in the abdomen and a red discharge. Dr. Finnegan, of Navan, who saw the patient at the beginning, informed him that the tumour changed its position from the left side to right in front of the uterus. He removed the tumour, which was adherent to three pieces of the omentum, but in endeavouring to separate the adhesions it burst and blood and coagulum escaped. There was difficulty in stopping the haemorrhage, and it looked very like an extra-uterine gestation. When he removed it he could pass a probe along the tube, but Dr. Earl, to whom he submitted the specimen, was entirely against the theory of gestation. He (Dr. Macan) could only say that it was a blood cyst of the broad ligament. The ovary was perfectly free from it, and since he removed it the patient was looking better and feeling better. If they considered it nothing but a blood cyst of the broad ligament it might be a questionable operation in young women, but at the same time the walls of the tumour were extremely thin, and the question was whether it would not burst. The interest of the case was very great, and the adhesions were many and extensive. He opened the abdomen in the line of the old cicatrix, but there were no adhesions there.

DR. E. H. TWEEDY inquired whether the woman thought herself pregnant. In the second place, why did Dr. Earl not consider it an ectopic gestation; and thirdly, had the tumour increased in size from the time it came under Dr. Macan's notice.

DR. MACAN replied that the woman had menorrhagia rather than a stoppage of the menses. She had extreme pain, with rises of temperature, and she never considered herself pregnant. He did not know whether the tumour had changed in size. With regard to Dr. Earl, he could not really say why he (Dr. Earl) thought that it was not an ectopic gestation.

Vaginal Hysterectomy.

DR. LOMBE ATTILLI read a paper on Vaginal Hysterectomy, specially with reference to its performance in cases of malignant disease of the uterus. After expressing his disbelief as to anything more than temporary benefit following supra-vaginal amputation of the cervix in such, he related three cases in which the disease originated in the interior of

that organ, and in which the operation was performed with marked success. In one of these four years has since elapsed, and the patient continues to enjoy perfect health. The other two were comparatively recent cases—in one about a year and in the other only nine months having elapsed since the date of the operation; they were, to all appearance, however, cures. Dr. Atthill considered these typical of the class of patients on whom hysterectomy should be performed, and that, too, at the earliest possible date. He hesitated to recommend its performance if the disease has extended downwards from the cavity to the cervix, or in cases in which the uterus, even to a limited extent, is engaged. He also considered that where the cervix is the primary seat of the disease, the operation of hysterectomy, though, perhaps, justifiable, is seldom successful in preventing its recurrence, and agreed with Dr. Williams that in such cases the cancer cells have a tendency to invade the adjacent tissues rather than to spread upwards towards the body of the uterus.

DR. W. J. SMYLY said he met the lady recently on whom Dr. Atthill performed the first operation, and she was in perfect health and spirits. He thought that one case like that would be quite sufficient to prove the value of the operation. He thought the reason why this operation had made such little progress in these countries was, that they seldom got cases to operate on in a sufficiently early stage. He thought that whenever a woman had a considerable haemorrhagic discharge, it was the duty of the medical attendant to examine her, or send her to some one who would do so. The patients of eighteen years and upwards were told that it was their changes, and at forty years that it was the change of life. He thought it was time that these loose and absurd ideas about the change of life should be done away with. In fact, women at the change of life should be examined much more carefully than at any other time. He could only reiterate what Dr. Atthill had said regarding doubtful cases. If there was a doubt after a microscopic examination he would be guided by the symptoms, and if they were such as to necessitate operation, he would extirpate the uterus whether it was cancerous or not. He meant such cases of adenoma, even benign, and chronic metritis, where, after curetting, &c., the haemorrhage was continuous. In a case of pyo-salpinx, he also removed the uterus, and this operation is the recognised one in France. With regard to the diagnosis as to whether the disease has gone beyond the reach of the knife, if in doubt at all he would not operate, because he generally found that the disease has gone further than one thinks. The uterus should always be freely movable; it should come down with ease, and on making a *per vaginam* and *per rectum* examination, the broad ligaments should be found free from disease, and also the utero-sacral ligaments. The operation was most successful in cases where the disease is not far advanced. He thought they might dispense with the curette in these cases, as the

microscopist wants muscle. He also agreed with Dr. Atthill regarding the bladder. He thought it much easier to retrovert the uterus and then pull it down through the vagina. He looked upon the removal of the ovaries as very important. In the first place the disease might spread along the tubes to them; and in the second place, if the functions are active they can only cause trouble, and the patient may subsequently have an abdominal pregnancy. As to cancer of the cervix, he would do exactly what Dr. Atthill said, because it was safer to remove the whole of it than to do supra-vaginal amputation of it. Besides, if they did not prolong the woman's life, they made it more comfortable both to herself and friends.

DR. HORNE said—At the age of fifty the uterus had virtually ceased to be an active organ, and therefore its removal did not carry the same amount of responsibility as it would before that age. He thought, then, that they would be more justified in removing it at fifty years of age than at forty. In the first case which Dr. Atthill mentioned, he noticed that for two months after the curetting the haemorrhage ceased. But on finding that the haemorrhage returned at the end of that time, he removed the uterus. Well, as the patient was only forty years of age, the question arose whether he was justified in performing hysterectomy unless after a microscopic examination.

DR. BATES referred to Dr. Martin's (of Berlin) method of operating. He saw him perform the operation, and he commenced from below; and when about two-thirds of the uterus was separated from its attachments, he commenced to separate the uterus from its attachment to the bladder, and then anteverted it, and separated the small portion that remained. He also performed it for cases of procidentia.

DR. MACAN mentioned that when he was president of their branch of the British Medical Association, he remembered Leopold, of Dresden, exhibiting 40 cases there. Hence, they must recognise that they were rather behind-hand here in performing the operation. Of course, in all cases where there is a cancerous uterus, they should operate, unless there were very good reasons against it. The only question was, what were the exact things that should prevent them from operating. Unless there was absolute certainty almost that the case would be unsuccessful, he would be entirely in favour of operating. And here he was not quite in agreement with them as to the exact contra-indications. He did not consider that a thickening of the broad ligaments was an absolute contra-indication, because they might have an inflammatory thickening of the broad ligaments. In cases of cancer of the cervix, he also thought it much better to operate, because they would, at all events, stop the haemorrhage and the foetid discharge. He said Leopold looked upon two years as the limit beyond which they might look upon the patient as cured. He himself had a sad illustration in a patient who died three

years after, and for that reason he could not look upon two of the patients to-night as cured until they heard a little more about them. He said Leopold removed the uterus for fibrous tumour, and if the uterus was of very considerable size it was better to err on the side of operating.

DR. ATTHILL, in reply, thanked the members for their interesting observations. He had no intention of bringing anything novel or wonderful before them, but simply a few interesting cases. The operation of hysterectomy was a simple one, and no one would hesitate to remove the cancerous uterus just as they would remove a breast. He thought as long as the operation was safe, they were perfectly justified in doing it, even if the cancer recurs. He entirely agreed with the President that it was best to err on the side of mercy, and relieve the patient's horrible condition by operating, even if the operation would be a useless one otherwise. Dr. Macan very properly criticised these cases as cases of cure, but what he (Dr. Atthill) meant to convey was, that they tended to prove that they were cases of cure. He did not understand the advantages of the operation mentioned by Dr. Bates as done by Dr. Martin.

The Section then adjourned.

SECTION OF PATHOLOGY.

President—J. A. SCOTT, M.D.

Sectional Secretary—J. B. STORY, F.R.C.S.I.

Friday, February 16, 1894.

The PRESIDENT in the Chair.

Exhibits.

DR. C. B. BALL exhibited a fresh specimen of tubercular peritonitis.

DR. E. H. BENNETT showed a specimen of fracture of base of skull, which had been accompanied by the unusual symptom of maniacal delirium.

DR. E. H. BENNETT exhibited a specimen of osseous union of a fracture of patella, associated with fracture of femur, and attributed the completeness of the osseous union to the presence of the latter lesion.

DR. MYLES asked did the two fractures occur simultaneously. He also alluded to Professor M'EWEN's theory, by which he explained the frequent want of osseous union in fractured patella. The atmospheric pressure was supposed to force the aponeurotic structures in front of the patella between the fragments.

DR. BENNETT, in reply, stated that he considered it quite possible, and

even probable, that the two fractures occurred simultaneously. He considered that the explanation of frequent non-bony union was separation of the fragments. There was always plenty of fluid effused into the joint to lift up any aponeurotic structures which might have fallen in.

Mediastinal Tumour (Columnar-celled Cancer).

DR. FINNY exhibited a specimen of this rare variety of intra-thoracic tumour. It was taken from a man, aged sixty-five, who had complained of weakness and emaciation for two years, and for three months before death of hoarseness and cough, with a small quantity of muco-purulent sputum. On admission to Sir Patrick Dun's Hospital the left vocal cord was partially paralysed without any tumour or inflammatory disease of the larynx; an enlarged gland was to be felt in the right and left supra-clavicular regions, and a comparatively dull note on percussion was present over the manubrium. Oedema of the right neck and arm, then of the left and thorax, set in, while the lower half of the body and legs were unaffected, and general cyanosis of the face, with great varicosity of the surface of the chest, pointed to great obstruction of the superior cava. The oedema almost entirely disappeared during the last fortnight of the patient's life.

The diagnosis of mediastinal tumour was confirmed by the autopsy, which revealed a very large hard tumour filling the anterior mediastinum and extending back to the front and left side of trachea. Its lower limit was the apex of the pericardium and its lateral the adjoining lungs, to which it was slightly adherent. Its structure was tunnelled by the arteries springing from the arch and by the ascending and transverse portions of the aorta without the involvement of these vessels in the growth, but the veins were compressed and the descending cava just above the opening of the v. azygos was narrowed so that a No. 12 catheter could just pass. The roots of the lungs, the trachea, and bronchi were all free of disease. The left pneumogastric nerve ran through the malignant growth, and was widened and flattened, but the recurrent laryngeal could not be dissected out of it, although its course past the tumour was readily demonstrated.

The microscopic examination of hardened and stained specimens made by Dr. Earl showed the nature of the growth to be columnar-celled cancer with a considerable amount of fibrous stroma. It was impossible to decide on its origin; the probability was that the thymus gland was its starting-point. Dr. Finny referred to the rarity of this form of mediastinal tumour, and to the greater frequency of lympho-sarcomata of which at first this case was supposed to be an example.

DR. PARSONS said that it was difficult to explain the origin of the cancer. It had been suggested to him that it might have sprung from the remains of the thymus gland, and this he considered very probable.

DR. COX gave a short account of a similar case he had seen. It was that of a gentleman in the prime of life, who a short time previously had been in perfect health. His illness began suddenly, and a tumour was detected behind the sternum. Owing to the suddenness of the symptoms, which consisted of dyspnoea and oedema, confined to the upper limbs and chest, it was imagined that the tumour might be of an inflammatory nature. Accordingly a portion of two ribs was excised and a quantity of fluid escaped. It was then discovered that the tumour extended from the manubrium back to the pericardium, and that it could not be removed. However, the patient recovered from the shock of the operation, and for three weeks he was much better and enjoyed comparative comfort. He then got worse and eventually died. This and DR. FINNY'S case illustrate how easy it is sometimes to exclude an aneurysm.

Urinary Organs from Case of Death from Catheter Fever.

PROF. MYLES exhibited urinary organs from case of death from catheter fever.

DR. JAMES LITTLE asked was there suppression between the rigors and the patient's death, or was there any history of chronic retention. He recollects three cases in which death in one case, and severe illness of four or five months' duration in the others, followed emptying of the greatly-distended bladder with a catheter. One was that of a gentleman who came to him complaining of thirst and some other symptoms, and in whom he found a greatly-distended bladder. He drew off his urine, and the patient afterwards exposed himself to cold. He shortly afterwards became unconscious, passed a very small quantity of putrid urine, and was dead in two days.

DR. COX related a case of an old gentleman who got a severe rigor after a single passage of a catheter.

DR. BENNETT mentioned the case of a patient on whom internal urethrotomy had been performed, who shortly afterwards got a rigor and had suppression of urine for forty-eight hours, but eventually recovered. Another case was that of a man who died of pyæmic abscesses in his lungs five days after the passage of a sea-tangle bougie to dilate a stricture. In these cases the rigor follows after the first effort at micturition, and he considers it to be due to some septic absorption.

DR. MYLES, in reply, stated that his patient had no suppression of urine, nor was there any evidence of chronic retention.

The Section then adjourned.

SECTION OF STATE MEDICINE.

President—D. EDGAR FLINN, F.R.C.S.I.

Sectional Secretary—NINIAN FALKNER, M.B.

Friday, February 9, 1894.

The PRESIDENT in the Chair.

Recent Developments in State Medicine.

THE PRESIDENT (Mr. Edgar Flinn) read a paper on the above. [It will be found at p. 281.]

Sanitary Administration in Dublin.

DR. DONNELLY detailed the excellent system that prevails in Dublin as regards the inspection of tenement houses and dairy yards, and pointed out the necessity for similar vigilance in detecting sanitary defects in the old and better-class houses, in many of which the pumps which formerly drained the subsoil have been closed. Water-closets have been erected without constructing new water-tight drains to carry away the sewage, so that a considerable quantity percolates into the earth surrounding the house-drains, thereby polluting it. He also pointed out, in confirmation of the above, the fact that for the last few years the middle and upper classes of society suffered more severely from enteric fever than their poorer neighbours owing to the imperfect sewers in the larger and older houses. Dr. Donnelly, among many suggestions, proposed that, in addition to the present staff two Assistant Medical Officers of Health be appointed—one for the north and one for the south side of the City, and that four specially skilled Sanitary Inspectors, to examine all the houses in every street periodically, to secure that the house drains be kept in perfect order. That a system of main drainage be carried out without further delay.

DR. ROCHE said that the defective sanitary administrations in country districts were in part due to the miserable salary paid to the medical officers for this portion of their work, and also to the fact that to many of them hygiene was an unknown and unstudied subject. The blame rested more with them than with Boards of Guardians. The Colleges who granted them their diplomas were also to blame. He considered that the system adopted in England, where medical men who did not practise took the entire charge of sanitary affairs, was much to be preferred.

SIR CHARLES CAMERON also spoke, approving of the system at present adopted in England. He thought that sanitary engineering should form a part of the curriculum for a diploma in State Medicine. He stated that since the time he came into office 10,000 fresh water-closets had

been constructed in Dublin, and so many privies abolished. He said that many of the Dublin tenement houses compared most favourably with those occupied by people of the same class in London. He had lately inspected a place in London where he found a cowshed without a yard holding 30 cows, and over the cowshed were a number of small rooms, 7ft. 3in. high, occupied by 22 families. To meet the wants of these people were two water-closets, one of which at the time of his visit could not be approached owing to floods of filthy water, and the other was so dark that you had to strike a light to examine it.

DR. GRIMSHAW, Registrar-General, said that at the time the Dispensary Medical Officer was appointed the Health Officer of the district, there was no other person who could be got to fill the position so well. He knew all the sick people, he was the Registrar of Births and Deaths, and he was the Public Vaccinator. He considered that the people to blame for any defects were the ratepayers. In many cases the Boards of Guardians were willing and anxious to make alterations, but did not do so, as they knew they would not please the ratepayers. With regard to Dublin tenement houses, he said that he had inspected a great number, and although they were not what they ought to be, they are a great deal better than what they were. Old Dublin could not be pulled down and rebuilt in a day. Although many improvements had been made, the death-rate was not diminished. He said the drainage was the cause of this, and that there were not sufficient means of removing the enormous quantity of polluted water in the city.

DR. S. M. THOMPSON said that he had met many cases of cholera in South America which he could not account for as being due to the contamination of water. To his mind this theory was not satisfactorily proved. He thought that cholera cases should be isolated outside a city altogether.

DR. FALKINER drew attention to some points in connection with the conveyance of patients by ambulance vehicles to hospitals.

DR. DELAHOYDE thought that the public health matters of the counties of Ireland should be attended to by a central board in Dublin, and that the medical officer of the district should be their agent. Sanitary expenses should be defrayed by a country or national rate.

THE PRESIDENT and DR. DONNELLY briefly replied.

The Section then adjourned.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, B.A., M.D., Univ. Dubl.; F.R.C.P.I.;
F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

VITAL STATISTICS

For four Weeks ending Saturday, April 21, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

TOWNS	Weeks ending				TOWNS	Weeks ending			
	Mar. 31	Apr. 7	Apr. 14	Apr. 31		Mar. 31	Apr. 7	Apr. 14	Apr. 31
Armagh -	28·0	35·1	28·0	7·0	Limerick -	33·7	22·5	30·9	14·0
Belfast -	29·6	31·4	29·4	29·1	Lisburn -	21·3	21·3	25·7	25·7
Cork -	35·3	26·3	27·7	27·7	Londonderry	29·8	26·7	18·8	36·1
Drogheda	61·5	8·8	17·6	17·6	Lurgan -	27·4	22·8	18·7	31·9
Dublin -	30·7	22·1	24·9	22·7	Newry -	36·2	32·2	16·1	16·1
Dundalk -	58·6	8·4	12·6	0·0	Sligo -	40·6	25·4	10·2	40·6
Galway -	37·8	34·0	22·7	18·9	Waterford -	32·5	10·0	47·5	40·0
Kilkenny	33·0	23·6	18·9	4·7	Wexford -	49·7	49·7	18·1	9·0

In the week ending Saturday, March 31, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 20·8), was equal to an average annual death-rate of 20·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·5 per 1,000. In Glasgow the rate was 22·3, and in Edinburgh it was 15·8.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 32·1 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·8 per 1,000, the rates varying from 0·0 in Londonderry, Lisburn, Drogheda, Wexford and Sligo, to 14·0 in Armagh—the 4 deaths from all causes registered in the last-named district comprising 2 from measles. Among the 153 deaths from all causes registered in Belfast are 22 from measles (being equal to the number for

the preceding week), 6 from whooping-cough, 1 from diphtheria, 1 from simple continued fever, 3 from enteric fever, and 2 from diarrhoea. The 51 deaths in Cork comprise 2 from scarlatina. Among the 9 deaths in Newry are 1 from enteric fever and 2 from diarrhoea. The 14 deaths in Dundalk comprise 1 from scarlatina and 1 from diarrhoea, and the 7 deaths in Kilkenny comprise 1 from simple continued fever and 1 from diarrhoea.

In the Dublin Registration District the registered births amounted to 244—116 boys and 128 girls; and the registered deaths to 216—115 males and 101 females.

The deaths, which are 13 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 32·2 in every 1,000 of the population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the district, the rate was 30·7 per 1,000. During the first thirteen weeks of the current year the death-rate averaged 31·5, and was 0·7 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 24, being 1 over the average for the corresponding week of the last ten years, but 4 under the number for the week ended March 24. The 24 deaths comprise 1 from measles, 1 from scarlet fever (scarlatina), 8 from influenza and its complications, 5 from whooping-cough, 1 from diphtheria, 4 from enteric fever, 3 from diarrhoea, and 2 from erysipelas.

Ten cases of enteric fever were admitted to hospital, being equal to the admissions for the preceding week: 14 enteric fever patients were discharged, 2 died, and 37 remained under treatment on Saturday, being 6 under the number in hospital on Saturday, March 24.

The number of cases of scarlatina admitted to hospital was 9, being a decrease of 3 as compared with the admissions for the preceding week: 10 patients were discharged, and 74 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 3 cases of measles, but no cases of typhus were received: 10 cases of measles and 2 of typhus remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had risen from 44 for the week ended March 17, to 57 for the following week, fell to 33, or 10 below the average for the thirteenth week of the last ten years. The 33 deaths comprise 22 from bronchitis, 9 from pneumonia or inflammation of the lungs, and 1 from pleurisy.

In the week ending Saturday, April 7, the mortality in thirty-three large English towns, including London (in which the rate was 19·0), was equal to an average annual death-rate of 19·6 per 1,000 persons

living. The average rate for eight principal towns of Scotland was 21·2 per 1,000. In Glasgow the rate was 23·0, and in Edinburgh it was 18·6.

The average annual death-rate in the sixteen principal town districts of Ireland was 25·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·5 per 1,000, the rates varying from 0·0 in ten of the districts to 21·0 in Armagh. The 5 deaths from all causes registered in that district comprise 3 from measles. Among the 162 deaths from all causes registered in Belfast are 12 from measles (a decrease of 10 as compared with the number for the preceding week), 7 from whooping-cough, 1 from diphtheria, and 1 from enteric fever. The 16 deaths in Limerick comprise 1 from scarlatina and 1 from typhus.

In the Dublin Registration District the registered births amounted to 165—88 boys and 77 girls; and the registered deaths to 155—59 males and 96 females.

The deaths, which are 46 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·1 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 22·1 per 1,000. During the first fourteen weeks of the current year the death-rate averaged 30·9, and was 1·2 under the mean rate in the corresponding period of the ten years 1884–1893.

Twenty-five deaths from zymotic diseases were registered, being one over the number for the preceding week and 2 in excess of the average for the fourteenth week of the last ten years. They comprise 2 from measles, 3 from scarlet fever (scarlatina), 3 from influenza and its complications, 5 from whooping-cough, 6 from enteric fever, 1 from diarrhoea, and 1 from erysipelas.

The number of cases of enteric fever admitted to hospital was 7, being a decline of 3 as compared with the admissions for each of the two weeks preceding: 2 enteric fever patients were discharged, and 42 remained under treatment on Saturday, being 5 over the number in hospital on Saturday, March 31.

Fourteen cases of scarlatina were admitted to hospital, against 9 in the preceding week, and 12 in the week ended March 24. Fourteen patients were discharged, leaving the number of cases in hospital on Saturday equal to that for the preceding Saturday—viz., 74.

The hospital admissions for the week included, also, 3 cases of measles and 1 of typhus: 9 cases of the former and 3 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 35, being 2 over the comparatively low number for the preceding week, but 10 under the average for the fourteenth week of the last ten years.

The 35 deaths comprise 20 from bronchitis and 8 from pneumonia or inflammation of the lungs.

In the week ending Saturday, April 14, the mortality in thirty-three large English towns, including London (in which the rate was 19.3), was equal to an average annual death-rate of 19.3 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19.7 per 1,000. In Glasgow the rate was 23.0, and in Edinburgh it was 16.9.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 26.2 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2.9 per 1,000, the rates varying from 0.0 in eight of the districts to 21.0 in Armagh—the 4 deaths from all causes registered in that district comprising 8 from measles. Among the 152 deaths from all causes registered in Belfast are 19 from measles (an increase of 7 as compared with the number for the preceding week), 1 from scarlatina, 7 from whooping-cough, 1 from diphtheria, and 1 from enteric fever. The 40 deaths in Cork comprise 1 from measles, 2 from diphtheria, and 1 from diarrhoea. The 12 deaths in Londonderry comprise 1 from diphtheria and 1 from enteric fever.

In the Dublin Registration District the registered births amounted to 201—99 boys and 102 girls; and the registered deaths to 175—95 males and 80 females.

The deaths, which are 9 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 26.1 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the district, the rate was 24.9 per 1,000. During the first fifteen weeks of the current year the death-rate averaged 30.6, and was 1.2 under the mean rate in the corresponding period of the ten years 1884-1893.

Only 15 deaths from zymotic diseases were registered, being 10 under the number for the preceding week and 6 under the average for the fifteenth week of the last ten years. They comprise 1 from measles, 3 from influenza and its complications, 2 from whooping-cough, 3 from enteric fever, 2 from diarrhoea, and 1 from dysentery.

Eleven cases of enteric fever were admitted to hospital, being 4 in excess of the admissions for the preceding week and one over the number for the week ended March 31: 4 enteric fever patients were discharged, one died, and 48 remained under treatment on Saturday, being 6 over the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 8, being 6 under the admissions for the preceding week, and one under the number for the week ended March 31: 17 patients were discharged and 65

remained under treatment on Saturday, being 9 under the number in hospital on Saturday, April 7.

The hospital admissions for the week included, also, 6 cases of measles and one of typhus: 14 cases of the former and 4 of the latter disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had risen from 83 for the week ended March 31, to 85 for the following week, fell again to 83, or 5 under the average for the corresponding week of the last ten years. The 83 deaths comprise 25 from bronchitis and 6 from pneumonia or inflammation of the lungs.

In the week ending Saturday, April 21, the mortality in thirty-three large English towns, including London (in which the rate was 18·0), was equal to an average annual death-rate of 18·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 17·5 per 1,000. In Glasgow the rate was 18·5, and in Edinburgh it was 15·2.

The average annual death-rate in the sixteen principal town districts of Ireland was 24·8 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in eight of the districts to 5·1 in Sligo—the 8 deaths from all causes registered in that district comprising 1 from typhus. Among the 150 deaths from all causes registered in Belfast are 13 from measles (a decrease of 6 as compared with the number for the preceding week), 6 from whooping-cough, 2 from enteric fever, and 2 from diarrhoea. The 40 deaths in Cork comprise 2 from measles, 1 from scarlatina, 1 from enteric fever, and 1 from diarrhoea.

In the Dublin Registration District the registered births amounted to 155—89 boys and 66 girls; and the registered deaths to 156—78 males and 78 females.

The deaths, which are 86 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·3 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 22·7 per 1,000. During the first sixteen weeks in the current year the death-rate averaged 30·2, and was 1·4 under the mean rate for the corresponding period of the ten years 1884–1893.

Only 13 deaths from zymotic diseases were registered, being 9 below the average for the corresponding week of the last ten years and 2 under the comparatively low number for the week ended April 14. The 13 deaths comprise 4 from influenza and its complications, 2 from whooping-cough, 1 from diphtheria, and 1 from diarrhoea.

The number of cases of enteric fever admitted to hospital was 9, being 2 under the admissions for the preceding week and 2 over the number

for the week ended April 7. Thirteen enteric fever patients were discharged, one died, and 43 remained under treatment on Saturday, being 5 under the number in hospital at the close of the preceding week.

Nine cases of scarlatina were admitted to hospital, being 1 over the admissions for the preceding week, but 5 under the number for the week ended April 7. Twelve patients were discharged and 62 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 21 cases of measles (against 6 for the week ended April 14) and 1 case of typhus : 80 cases of the former and 3 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 31, being 10 below the average for the corresponding week of the last ten years, and 2 under the number for the week ended April 14. The 31 deaths comprise 18 from bronchitis, 10 from pneumonia or inflammation of the lungs, and 1 from pleurisy.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of April, 1894.

Mean Height of Barometer,	-	-	-	29·801 inches.
Maximal Height of Barometer (on 30th, at 9 p.m.),	-	30·427	"	
Minimal Height of Barometer (on 24th, at 9 a.m.),	-	29·261	"	
Mean Dry-bulb Temperature,	-	-	-	48·7°.
Mean Wet-bulb Temperature,	-	-	-	46·7°
Mean Dew-point Temperature,	-	-	-	44·5°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	·294 inch.
Mean Humidity,	-	-	-	86·5 per cent.
Highest Temperature in Shade (on 8th),	-	-	-	62·7°.
Lowest Temperature in Shade (on 1st),	-	-	-	38·0°.
Lowest Temperature on Grass (Radiation) (on 2nd)	-	-	-	30·0°.
Mean Amount of Cloud,	-	-	-	64·0 per cent.
Rainfall (on 20 days),	-	-	-	3·123 inches.
Greatest Daily Rainfall (on 13th),	-	-	-	·561 inch.
General Directions of Wind,	-	-	-	S.E., S.S.E., S.

Remarks.

Like April, 1893, this was a mild month, and led to a forward spring. Unlike that month, however, the amount of cloud was large, particularly in the mornings, and rain fell frequently (on 20 days) and heavily (to the total amount of 3·123 inches). The prevalent winds were from S.E. and S. Under these several circumstances vegetation made rapid progress, and by the end of the month most of the forest trees were in full foliage, and the hawthorn, lilac, and laburnum were fast coming into blossom.

In Dublin the arithmetical mean temperature ($49\cdot9^{\circ}$) was $2\cdot2^{\circ}$ above the average ($47\cdot7^{\circ}$); the mean dry bulb readings at 9 a.m. and 9 p.m. were $48\cdot7^{\circ}$. In the twenty-nine years ending with 1893, April was coldest in 1879 (the cold year) (M. T. = $44\cdot5^{\circ}$), and warmest in 1893 (M. T. = $51\cdot4^{\circ}$). In 1886 the M. T. was $46\cdot3^{\circ}$, in 1887 it was as low as $45\cdot1^{\circ}$, in 1888 it was (as also in 1891) only $45\cdot7^{\circ}$, in 1889, $46\cdot1^{\circ}$; in 1890, $47\cdot3^{\circ}$; and in 1892, $46\cdot2^{\circ}$. The month of April, 1893, was the warmest for at least 30 years.

The mean height of the barometer was 29.801 inches, or 0.049 inch below the average value for April—namely, 29.850 inches. The mercury rose to 30.427 inches at 9 p.m. of the 30th, having fallen to 29.261 inches at 9 a.m. of the 24th. The observed range of atmospheric pressure was, therefore, 1.166 inches—that is, a little less than an inch and two-tenths.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was $48\cdot7^{\circ}$, or $4\cdot9^{\circ}$ above the value for March, 1894. Using the formula; $\text{Mean Temp.} = \text{Min.} + (\text{max.} - \text{min.} \times .476)$, the value becomes $49\cdot6^{\circ}$, or $2\cdot2^{\circ}$ above the average mean temperature for April, calculated in the same way, in the twenty-five years, 1865–89, inclusive ($47\cdot4^{\circ}$). The arithmetical mean of the maximal and minimal readings was $49\cdot9^{\circ}$, compared with a twenty-five years' (1865–1889, inclusive) average of $47\cdot7^{\circ}$. On the 8th the thermometer in the screen rose to $62\cdot7^{\circ}$ —wind, S.E.; on the 1st the temperature fell to $38\cdot0^{\circ}$ —wind, calm. The minimum on the grass was $30\cdot0^{\circ}$ on the 2nd.

The rainfall was 3.123 inches, distributed over as many as 20 days. The average rainfall for April in the twenty-five years, 1865–89, inclusive, was 2.055 inches, and the average number of rainy days was 15.2. The rainfall, therefore, was considerably above the average, while the rainy days were also much in excess. In 1877 the rainfall in April was very large—4.707 inches on 21 days; in 1882, also 3.526 inches fell on 20 days. On the other hand, in 1873, only .498 of an inch was measured on 8 days, and in 1870, only .838 of an inch fell, also on 8 days. The fall in 1890 was 1.575 inches on 14 days; in 1891, 1.553 inches fell on 14 days, in 1892, 1.114 inches on 13 days, and in 1893, 1.046 inches on 7 days.

There were lunar halos on the 15th and 17th. The atmosphere was more or less foggy on the 1st, 3rd, 4th, 6th, 9th, 10th, 11th and 20th. High winds were noted on only 5 days, but reached the force of a gale on two occasions—namely, the 22nd and 24th. No snow or sleet was seen, but hail fell on the 13th and 24th. The temperature exceeded 50 in the screen on every day, except the 6th, compared with every day in 1893, only 24 days in April, 1892, and only 18 days in April, 1891. It rose to or above 60° on only 3 days, but never fell to 32° in the screen. The minimum on the grass was 32° , or less, on only one night, the 2nd, compared with five nights in April, 1893. The mean lowest temperature

on the grass was 40.0° , compared with 38.2° in 1893, 32.4° in 1892, 34.1° in 1891 and 1890, 34.4° in 1889, 34.8° in 1888, and 31.6° in 1887. There was an aurora borealis on the evening of the 5th.

Although the distribution of pressure, and the winds over North-western Europe (including the British Islands), during the week ended Saturday the 7th were mainly anticyclonic, the system was of a somewhat complex character, and at times shallow depressions advanced from the southward over Spain, the Bay of Biscay, and France, but on reaching the southern parts of the United Kingdom they either filled up or moved away again in a northwesterly direction. Thus, while the wind was chiefly easterly in direction, and the weather fine and dry, there were occasional showers over our southern and western districts, sometimes accompanied by thunder and lightning, and over the southwestern parts of the Iberian Peninsula the fall of rain was heavy. Temperature varied a good deal—as a rule the nights were cold and hazy or foggy, the days bright and warm, and the winds light; on Friday, however, the easterly wind blew very freshly over the southern parts of the kingdom, a good deal of cloud was experienced, and the day-maxima of temperature were lower by many degrees than those of the earlier days. On Saturday, however, there was a recovery, the day being fine and warm. In Dublin the mean height of the barometer was 29.995 inches, atmospheric pressure ranging between 30.174 inches at 9 a.m. of Thursday (wind calm), and 29.807 inches at 9 p.m. of Monday (wind, E.N.E.). The corrected mean temperature was 47.1° . The mean dry bulb reading at 9 a.m. and 9 p.m. was 46.4° . The highest shade temperature was 55.6° on Thursday, the lowest 38.0° on Sunday. The rainfall was .219 inch on 4 days; the general direction of the wind was E.N.E. In contrast to the bright, dry weather of the preceding week, clouds and fogs were prevalent, with rain on most days.

The week ended Saturday, the 14th, witnessed the establishment of cyclonic conditions and changeable, rainy weather in Ireland and in many parts of Great Britain also. On the Continent, however, quiet, fair weather held until almost the close of the period, leading to complaints of drought from certain districts in Italy, Germany, France, and Scandinavia. From the beginning of the week a tendency was observed for shallow depressions to advance over the British Islands from the south-westward. These were subsidiary to a larger area of low barometer over the Atlantic, and on Wednesday they produced sharp thunderstorms in England and Wales as well as over the west of Scotland. On this day rain fell heavily in central Ireland also—.89 inch being measured at Parsonstown in the King's County. The changeable character of the weather became still more decided towards the close of the week, and on Saturday morning an extensive and deep depression moved northwards along the west coast of Ireland. At 8 a.m. the barometer was down to 29.12 inches at Valentia Island (Kerry) and to 29.18 inches at Belmullet

(Mayo). Southerly to easterly gales were felt at some exposed coast stations, and rain fell abundantly in several places. In Dublin the mean height of the barometer was 29.750 inches, pressure ranging from 29.884 inches at 9 a.m. of Wednesday (wind, calm) to 29.384 inches at 9 a.m. of Saturday (wind, E.S.E.). The corrected mean temperature was 51.8°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 50.1°. On Sunday the screened thermometers rose to 62.7°, on Friday they fell to 43.9°. The rainfall amounted to 1.096 inches on six days, .561 inch being measured on Friday. The prevailing direction of the wind was S.S.E. Hail fell on Friday. The atmosphere was damp and thick or foggy on Monday and the two following days.

The weather during the week ended Saturday, the 21st, was at first very broken and rainy in Ireland, but it took up on Wednesday and remained fair and for the most part bright until the end. In the earlier part of the week, atmospheric pressure was low in the British Isles and their immediate neighbourhood, high over the extreme north of Europe, and subsequently over the Iberian Peninsula as well. Both on Monday and Tuesday at least two areas of low pressure were found lying over the United Kingdom, where the weather was consequently broken and wet or showery. The showers were very heavy in places and were sometimes (especially on Wednesday) accompanied by thunder and lightning. In London hail fell on Tuesday. During the night of this day one of the depressions just spoken of moved southeastwards from St. George's Channel to France, the result being a N. wind and clearing weather in Ireland, but a continuance of cloud, gloom, and rainy conditions in the S. and S.E. of England. On Friday the barometer fell decidedly in Ireland, and the wind became southerly with a rising temperature and increasing cloud. Meanwhile the fair weather spread more and more over England, where temperature had failed to reach 50° in the south-eastern counties on Thursday owing to a northerly air current and a densely clouded sky. In Dublin the mean height of the barometer was 29.774 inches, pressure ranging between 29.302 inches at 9 p.m. of Monday (wind, calm), and 30.178 inches at 9 p.m. of Thursday (wind, E.S.E.). The corrected mean temperature was 49.0°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 48.4°. The extreme temperatures were 59.4° and 38.8° respectively, and were recorded on the same day, namely, Friday. Rain fell on the first three days to the total amount of .631 inch, .319 inch being registered on Sunday. The prevailing wind was S.S.E.

The weather was in a very unsettled state until nearly the close of the week ended Saturday, the 28th, when it became fine and bright in Ireland. On Sunday and again on Tuesday gales of considerable force swept over this country from S.E. and S. The storms were accompanied by heavy rains, or showers of cold rain and hail, as well as lightning. In England the gales were not much felt, but severe thunder and hail storms

occurred in many places on Wednesday and following days. In the course of Sunday gradients for southerly winds became very steep over Ireland, where the wind accordingly freshened to a gale as the day advanced. By 6 p.m. the barometer fell to 29.15 inches at Valentia Island in Kerry. At night heavy rain occurred in the S. and S.E. of Ireland, while the depression moved away towards N.W. At the same time, however, a series of secondary areas of low pressure developed over St. George's and the English Channels, causing the broken weather to spread out in all directions. On Tuesday morning a large and deep depression was again found off the S.W. of Ireland, the barometer reading only 28.81 inches at Valentia Island at 8 a.m. Like its predecessor, this system passed off towards N.N.W. and broke up, sending several secondaries eastwards across the United Kingdom on Thursday and Friday to carry rain to nearly all districts. In Dublin the mean height of the barometer was 29.577 inches, pressure ranging from 29.261 inches at 9 a.m. of Tuesday (wind, S.) to 30.095 inches, at 9 p.m. of Saturday (wind, calm). The corrected mean temperature was 49.8°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 49.3°. The extreme temperatures in the shade were both recorded on Saturday—highest, 60.0°; lowest, 42.0. Rain fell on six days to the total amount of .977 inch, .421 inch being registered on Monday. The prevalent winds were S.S.E. and S.

Sunday, the 29th, was at first dull, afterwards very rainy owing to the advance of a shallow depression from the northwestward. On Monday, the 30th, the weather became bright and bracing, with a crisp northerly wind after a dull morning.

The rainfall in Dublin during the four months ending April 30th amounted to 9.151 inches on 73 days, compared with 6.242 inches on 56 days in 1893, 5.922 inches on 61 days during the same period in 1892, only 3.203 inches on 46 days in 1891, 9.045 inches on 59 days in 1890, 8.345 inches on 74 days in 1889, 8.090 inches on 58 days in 1888, and a twenty-five years' average of 8.466 inches on 66.2 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall during April, 1894, amounted to as much as 4.171 inches on 17 days. The heaviest rainfalls in 24 hours were .726 inch on the 29th, .710 inch on the 15th, and .560 inch on the 22nd. In 1893 only 1.055 inches of rain fell at this station on 5 days. The total rainfall in 1894 up to April 30 was 12.456 inches on 70 days. The corresponding figures in 1893 were 8.580 inches on 54 days.

The rainfall in April, 1894, at Clonerevin, Killiney, Co. Dublin, was 3.53 inches on 19 days. The maximal fall in 24 hours was .52 inch on the 15th. The average rainfall in April for nine years was 1.51 inches on 12 days. Since January 1, 1894, 9.09 inches of rain fell at this station on 74 days. The corresponding values for 1893 were 6.94 inches on 57 days.

PERISCOPE.

THE RELATION OF PHLEGMASIA ALBA DOLENS IN TYPHOID FEVER TO TYPHOID BACILLI.

HAUSHALTER (*Rev. Méd. de l'Est*, April 1, 1893; *Rev. Int. de Bibliographie*, 1894, No. 2, page 17) notes that the point of departure of venous thrombosis is to be found in an alteration of the lining membrane of the vessel, and that in some diseases this alteration may be due to micro-organisms, constituting a secondary infection. A case is reported that goes to show that phlegmasia may be due directly to the action of typhoid bacilli. A girl, twenty-one years old, died in the sixth week of an attack of typhoid fever, and upon *post-mortem* examination a fibrinous clot was found in the left crural vein, extending from the apex of Scarpa's triangle to the iliac vein. Bacteriological study of the walls of the vein and of the clot, as well as of the liver and spleen (which contained two small abscesses), disclosed the presence exclusively of typhoid bacilli. The phlegmasia was thus the seat of an unusual localisation of the bacilli, either from the formation of a bacillary embolus at the time of resolution of rose-spots or from infection of the walls of the vein by direct contact with an adjacent lymphatic gland, itself contaminated by the backward stream from the lymphatic glands of the abdomen.—*Medical News*, April 21, 1894 (page 432).

OVARIOTOMY IN PREGNANCY.

La Presse Médicale summarises, from the proceedings of the *Congrès des Médecins Russes*, a paper by a Dr. Gordon on the results of ovariotomy in pregnant women. In five cases of his own two aborted—one on the fifth, the other on the fifteenth day after the operation; the other three were normally delivered at full term. The author collected a total of 204 cases. In 21 the result of the pregnancy is not noted; in 7 the uterus was wounded during the operation, and of these two were fatal. Of the remaining 176 patients, 104 (93·2 per cent.) recovered, 12 (6·8 per cent.) died, 122 (69 per cent.) were delivered at term, and 49 (22 per cent.) aborted.

STATISTICS OF THE PROFESSION.

THE *Medical Record* has collected some statistics, of which we extract the following:—In 1894 there is one medical practitioner to 750 of population in London; in Wales and the provinces, to 1,650; in Scotland, to 1,300; in Ireland, to 1,900. In Italy, in 1892, the proportion was 6·2 practitioners per 10,000 of population—ranging from 11·1 in 69 chief towns to 5·3 in rural communes. In Rome the proportion was 11·6; Naples, 28·3; Milan, 8·8; Turin, 8·8; Palermo, 8·2; Genoa, 12·0; Florence, 13·1; Bologna, 10·2; Venice, 8·5; Catania, 9·5.

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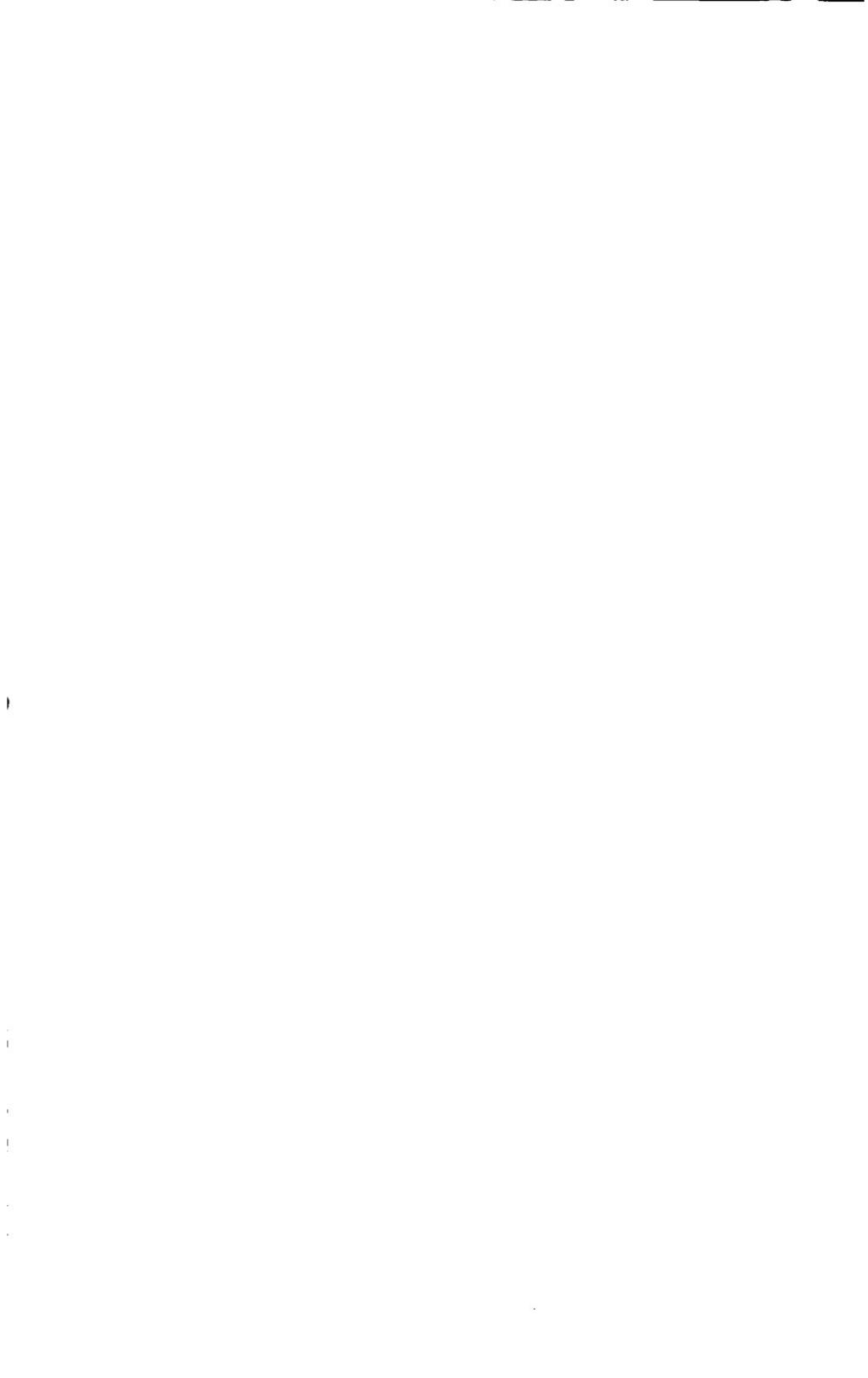
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